

A Journey Through
Pennsylvania Farmlands



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A JOURNEY THROUGH
PENNSYLVANIA FARMLANDS

A Journey Through Pennsylvania Farmlands

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THE PENNSYLVANIA BOOK SERVICE
PUBLISHERS

HARRISBURG, PA.

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A Journey Through Pennsylvania Farmlands

Printed By THE TELEGRAPH PRESS
CAMERON AND KELKER STREETS
HARRISBURG, PENNSYLVANIA

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Chapter I

Bobby Baxter Goes to the Farm Show

Little Bobby Baxter, so called because he was named after his towering Uncle Robert, was hastily leafing through the morning newspaper, searching for his favorite comic strip, when his eye was attracted by a black headline that seemed fairly to stand out on the page. It read as follows:

**ROBERT MERTON BAXTER,
UNION COUNTY GRANGER,
TO BE "MASTER FARMER."**

"Why, that's my Uncle Bob!" cried Little Bobby, in his astonishment. Then, seeing his father just coming up the walk, he dashed to the front door, yelling at the top of his voice: "Daddy, come look at the morning paper! There's a story in it about Uncle Bob!"

"Is that so!" exclaimed the lad's father. "What does it say?"

"I didn't read it," replied Little Bob, "but the headline says that Uncle Bob is going to be a master farmer."

"Humph!" snorted Mr. Baxter. "I like that! If my brother isn't already a master farmer, I'd like to know who is. He's master of the pomona grange, a county commissioner, head of the county farm bureau, and a leader in almost everything that affects agriculture, as well as being about the most outstanding farmer in the county. Let me see that paper." He reached impatiently for the news sheet.

For a moment he read industriously. Then a pleased smile crept over his face. "They're going to give him a medal at the Farm Show because he is such an outstanding leader in agriculture," he said. "I'll bet that's what this letter from Bob is about that the postman just handed me." Mr. Baxter hastily pulled a big envelope from his pocket. As he opened and read the letter, the smile deepened on the face of Little Bobby's father.

"Well, that's fine!" he exclaimed. "Just fine! The farm leaders have picked your Uncle Robert as one

of the foremost farmers in the whole State, and they're going to give him a gold medal at the conclusion of the Farm Show in Harrisburg this week. They're going to have a big dinner at the Penn-Harris Hotel, and your Uncle Bob will be one of the guests of honor and receive his medal there, along with about ten other leading farmers who will also be honored."

"Isn't that great!" cried Little Bob, clapping his hands joyously. "Gee! I wish I could be there and see it."

Robert's father looked up with a smile. "Maybe you can," he said. "Your Uncle Robert wants your mother and you and me to come to the Farm Show as his guests, and he thinks he can also get us invited to the big dinner, where he is to receive the medal."

Mr. Baxter paused and frowned. "The date I notice is that of next Friday. School will still be in session. Of course you wouldn't want to miss a day in school, just to go to the Farm Show."

Little Bobby's face became so long and doleful that his father laughed outright. "If that's the way you feel about it," he smiled, "I guess it wouldn't really do a great deal of harm if you did miss one

day of school. What do *you* think about it, Little Bob?"

The lad's answer was a yell of delight. "Mother!" he shouted, as he tore for the kitchen. "We're all going to Harrisburg next Friday to the Farm Show to see Uncle Bob made a 'Master Farmer.' Gee! Isn't it great! And won't the kids open their eyes when I show 'em this piece in the paper and tell 'em that's *my* Uncle Bob that I'm named after."

Presently Little Bob had another idea. "What's the Farm Show like, Daddy? I've never been to one, you know. Is it like the County Fair?"

"It's so wonderful I just couldn't describe it," said Mr. Baxter. "So you'll have to wait and see it. But I'll tell you this: it's everything you may think it is, plus a whole lot more. Now don't bother me with a lot of questions about it. You'll see it all in a very short time."

Promising as all this seemed to be, Little Bob was wholly unprepared for what he saw when his father drove the family car up to the entrance of the Farm Show building in Harrisburg the following Friday morning. In fact, Little Bob was just about stupefied by what was before him.

To begin with, there were more cars parked



"... THE BUILDING STRETCHED FOR AN UNBELIEVABLE LENGTH"

around the great building and in the huge vacant lots across the street, than he had ever seen together before: thousands and thousands of them. The Farm Show building itself was so huge that Little Bob didn't know where to start looking at it. He noticed, however, that it occupied a large tract of land which had not been cut up into city blocks, although it was well within the city itself, and the front of the building, made of red bricks, stretched for an unbelievable length. But what caught and held Little Bob's eyes was the ornamental frieze, cut in straw-colored stone, that ran across the upper part of the front of the structure. Here were sculptured all sorts of farm scenes and farm animals. Such a huge picture, whether made of canvas and paint or of stone, the lad had never even dreamed of.

But he had little time to examine the thing, for with a brisk, "Come on Little Bob," his father pulled open a door and swept the Baxter family inside of the portals.

If the lad had been astonished before, he was now fairly astounded. Outside he had been looking at the great structure with the whole heavens as a background. The open sky necessarily dwarfed it. But here he could not see the sky. All that was vis-

ible was an enormous corridor that ran across the entire front of the building and that seemed to Little Bob to have no end. When he glanced through the battery of doors on the other side of this corridor into the great main exhibition room, the prospect was amazing. There must have been thousands and thousands of persons walking about among countless booths and looking at countless exhibits of all sorts. Little Bobbie knew at a glance that this must be like all the county fairs he had ever seen rolled into one and then magnified many times. The sight was entrancing. It made his pulse beat fast. But all he could say as he looked with bulging eyes, was "Gee!"

That was all he had a chance to say, for his father caught him by the hand and said, "Come on, lad. We've got to look up your Uncle Robert. After we do that, you can explore to your heart's content."

Down the corridor they marched, rod after rod, with Little Bob pulling hard at his father's hand, for there were so many things to see he just *couldn't* walk right past without pausing to look. But his father relentlessly dragged him along, until finally they came to some stairs up which they hastened, and then on and on through a narrow corridor until finally they paused before a door that bore a great

letter E.

Mr. Baxter threw open the door and ushered his family into a room in which a considerable group of farmers was gathered. Evidently some sort of a meeting was in progress. There, right up front, apparently in charge of the meeting, was the lad's Uncle Bob. He nodded a greeting as he caught sight of them, and as soon as the speaker had finished his talk, he rose and walked swiftly down the aisle to meet them.

How Little Bob worshipped his big uncle! There he was, a huge fellow who towered above everybody else, and he was as handsome as he was huge. At least, Little Bob was very certain he was. He had the finest smile one ever saw. It fairly thrilled Little Bob when his big uncle reached down and picked him up and gave him an affectionate pat on the shoulder.

"How is my young namesake?" he asked, with another affectionate pat.

But before Little Bob could say a word, his father answered.

"As full of mischief as ever," he said, "and simply dying to get into that big room and see all the sights. Why, I could hardly drag him up here to greet

you, and he just about idolizes you."

"Well, well," smiled Uncle Bob. "Youth must be served, you know. You can see Uncle Bob at any time, can't you lad? But you can't see the Farm Show at any time. So I think we'll turn you loose, if your father is willing, and you and your cousin Tom can have the run of the place until dinner time. You won't want to stay here and listen to a lot of dull speeches."

"Oh gee!" cried out Little Bob, forgetting that he was in a meeting. "Is Tom here? Where is he? Won't that be dandy!"

Little Bob's mother looked worried.

"It'll be all right, Hanna," said Uncle Bob. "Tom has been here for several days, and he has seen everything. He knows where everything is, and he knows what'll please Little Bob. He could find his way about with his eyes shut. We'll just let the boys enjoy themselves. They don't want to have to be tied up to a lot of old folks like us."

Thereupon, Mr. Baxter tiptoed up front again, because another speaker was talking. Shortly he returned with young Tom, who had been sightseeing so hard that he had dropped asleep from sheer exhaustion. But the moment Tom saw his cousin, he

was wide awake. The two cousins pounded each other on the back, by way of greeting, and Tom received a hearty hug from Aunt Hanna and a warm handshake from Little Bob's father.

"Now," said Uncle Bob, "if I turn you two kids loose, will you promise me not to go outside of the building, not to get into any mischief and to be back here at twelve o'clock sharp?"

"You bet!" cried the cousins heartily.

"Honor bright!" said Uncle Bob.

"Honor bright!" echoed the lads.

"Then here's twenty-five cents apiece," and he handed each lad a shining new quarter dollar. "Now run on and enjoy yourselves."

"They'll spoil their dinner," moaned Little Bob's mother, as the two sturdy boys, arm in arm, bolted out of the room. Tom was twelve and Little Bob ten. Never was there a huskier pair of lads.

"I'll risk their dinner," smiled Uncle Bob. "When I was that age I could eat like a horse."

Evidently he had not misjudged them, for hardly were the two cousins inside the great show room before Little Bob sighted a peanut roaster, and each lad parted with five cents of his precious quarter dollar. Then, happily munching the peanuts, the

happy pair set out to explore.

"Well, gee whiz!" said Little Bob. "Gee whiz!" For no matter where he looked, he saw something that amazed him. There were exhibits of farm seeds, potatoes, tobacco, fertilizers, garden implements, spraying pumps, incubators, day-old chicks, wind-mills, house paints, potted plants, cream separators, electric milking machines, plows, harnesses, farm wagons and everything else that could possibly be used on a farm. Then, too, there was an old Conestoga wagon, just like the pictures of the covered wagons used by western pioneers. It fascinated Little Bob.

Many of the exhibits had little interest for either lad, but they found plenty that were interesting. The display of the State Department of Forests and Waters captivated them both, with its lovely little artificial woods and ponds and realistic waterfall, and a camp that fairly made their eyes dance. Here was a display by a school, with a complete manual training department, in which a whole class of boys were at work as busy as beavers, cutting and sawing and planing and polishing pieces of wood, out of which they finally made the most delightful things—stools, cabinets, ornaments, toys and whatnots.

Of course there were "hot dog" stands, where more out of each quarter dollar disappeared. The ice cream counters were just as inviting. There was a place where they were baking the best-smelling white potatoes imaginable. Here and there were candy booths, soft drink stands, booths where women were selling appetizing hot buns and everything else that boys big and little like to eat. So the twenty-five cent pieces melted away like a snow-bank under a warm April sun.

And such apples! Certainly Little Bob had never seen the like. Entire great stands filled with the most delicious red and yellow and green apples, all beautifully graded and attractively packed in delightful containers. All were covered with great sheets of cellophane, to keep them free from dust, and also to prevent passersby from handling them.

"Well, gee whiz!" repeated Little Bob over and over again, as one new attraction after another caught his eye.

How the two lads did load up with souvenirs! Free yardsticks were to be had for the taking, free gewgaws and gadgets, gaudy green and blue and red and yellow catalogs, free sample packages of foods and seeds and paints, attractive circulars, and every

other conceivable sort of advertising matter, just waiting to be carried off. Before they had seen half the show, the two lads each had both hands and arms full.

On they went, up one aisle and down another, now admiring some farm wife's display of canned pickles, now watching a skilled worker roll cigars out of loose tobacco. Once they viewed a picture exhibit that set forth in attractive photographs the story of some famous farm. Later, after their quarters were gone, they watched the great popping machines that turned out vast quantities of popcorn that smelled so good and made their mouths water.

But no matter how far they went, or how many things they saw, there were always new fields to explore, new exhibits to be seen, new demonstrations to witness. In size and complexity and diversity the Farm Show was simply past belief. No wonder that Little Bob again and again cried out "Gee whiz! Will you look at that, Tom!"

Nor was it any wonder that twelve o'clock arrived long before either boy even dreamed it was noon. Yet that was the time indicated by the big clock on the wall, and with a sigh of regret Little Bob said, "We'll have to go back to the meeting room,

Tom. How do you get there?"

Tom swiftly led the way, and there they found the meeting just about to adjourn, and the audience just beginning to file out of the room.

Little Bob rushed up to his big uncle. "You just ought to see it, Uncle Bob!" he cried. "It's bigger than—bigger than—I don't know what. Everything in the world is on exhibition."

Uncle Robert laughed. "I can tell you how big it is," he said. "It's bigger than a ten-acre field. Of course, your friends at school may not believe you, but when you get back you can tell them that the Pennsylvania Farm Show building encloses more than ten acres, and that is an area as large as several city blocks. But I don't suppose you have seen all of it yet.

"Sure I have," said Little Bob, indignantly. "I saw everything."

"How about that, Tom?" asked Uncle Bob.

"He ain't seen nothin' yet," said Tom, lapsing into slang.

"One thing is sure," laughed Uncle Bob. "He hasn't yet seen the cafeteria, and that's a show in itself. Come on. Let's take a look at it. But then, I don't suppose you boys want anything to eat, do

you?" And his eyes twinkled merrily.

"We'll take a *look* at the cafeteria, anyway," replied Little Bob.

"I knew it!" moaned Little Bob's mother. "I warned you they'd spoil their dinners."

"Let's go to the cafeteria and find out," replied Uncle Bob, with another twinkle in his eyes, and off they trudged.

"Well, gee whiz! gee whiz!" exclaimed Little Bob, when he entered the great dining room. "You could feed a regiment here."

It wasn't any wonder he was amazed, for he was entering a room that seated more than 700 diners, with lunch counters and serving counters, and other regular restaurant equipment besides.

"Where shall we sit?" asked Little Bob's mother.

"Wherever you see an empty seat," replied Uncle Bob. "You can't be particular here. There are probably 60,000 persons at the show today. You're lucky to get a seat at all."

Improbable as that sounded, it proved to be true; for they walked the length of the room and back and never found an empty seat. So they had to stand and wait. But presently a smiling waitress touched Uncle Bob on the arm.

"There are four persons just leaving that table over there," she said, pointing, "and if you hurry, you can get the seats."

The party scrambled to the indicated table and sat down.

"Thanks," said Uncle Bob to the waitress. "Will you take our order please?" He picked up the bill of fare and passed it around.

For a moment everybody was busy studying it. Then Uncle Bob said, "What's your order Little Bob? The youngest comes first in this party. Your mother thinks you won't want anything."

"Can I order anything I want, Uncle Bob?"

"Absolutely. Get whatever you wish."

"Gee!" said Little Bob. Then after a pause, he turned to the waitress and said, "I wish you'd bring me some of those fried oysters and some hot dogs and some candied sweet potatoes and some hot buns with butter and some Hamburger steak and a roasted potato with plenty of butter in it and a piece of mince pie and some ice cream and—"

"Robert!" cried his mother. "Whatever are you doing!"

"Why, Uncle Bob told me I could have all I wanted," protested the lad.

As for Uncle Robert, he burst into a roar of laughter. "What did I tell you, Hanna," he said. "Besides, he'll stop eating when he's had all he wants. Anyway, he'll need a little fuel in his tanks when he and Tom finish up their job of sightseeing this afternoon. You haven't any idea how many miles those lads will tramp before they have really seen the Farm Show."

Chapter II

The Calf That Brought \$700

It was some time after Little Bob finished eating his dinner—or as much of it as he could possibly manage to stow away—before he felt like doing any tramping at all. The big meal, the hot room, the endless walking he had done in the forenoon, and the unusually early hour at which he had risen, all united to make him feel suddenly tired and sleepy. Uncle Bob was quick enough to note the situation, and he said: “Before you youngsters start on another trip, come up to the meeting room with us. I want a chance to talk to my namesake a little.”

So Little Bob and Tom trudged wearily back to the convention room. They made every effort to conceal their fatigue, but before they had been seated five minutes both boys were sound asleep. They were simply tired out. So the old folks chatted softly and let them sleep until it was time for another session of the farm group in Room E. Then Uncle Bob woke them gently.

"Looks to me as though you don't really care much about the Farm Show," he teased, as Little Bob sleepily opened his eyes. "I guess I made a mistake in asking you to come. I suppose you won't be one bit interested in staying in Harrisburg for the big dinner this evening."

Little Bob shook himself awake and protested defensively, "Of course I'm interested. That's what I was just thinking about—what a wonderful show it is. I'll bet you thought I was asleep."

"I'll bet you are right," retorted Uncle Bob. "Now run along, you two, and don't you come back here until you have seen every last thing there is to see—that is, if you can see it before six o'clock. You be back here then for sure."

Away they hustled, miraculously refreshed by their little nap and the plentiful supply of "fuel" they had packed away in the cafeteria. Briskly Tom led the way down the long corridor and through the great exhibition room that they had found so fascinating in the forenoon. Little Bob followed in astonishment, for he did not yet understand that there was anything more to see than the marvelously attractive exhibits he had examined before dinner. He thought they must have missed some things and that

Tom was taking him back to them.

But when his cousin pushed rapidly past the last exhibit and disappeared through a swinging door, Little Bob knew there was something different ahead of him. He pressed hard after his cousin. In a minute they were staring at a greater poultry show than Little Bob had ever dreamed of.

In fact, he had never even imagined anything like it, for here were hundreds and hundreds of cages, each containing several beautiful fowls. So he wasn't a bit surprised when Tom told him that there were between four and five thousand birds on exhibition.

The thing that amazed Little Bob, however, was not the number of birds, but the unbelievable variety of poultry exhibited. He hadn't ever imagined there were so many sorts of chickens in all the world. In addition, there were all kinds of geese and guineas and ducks and turkeys and pigeons. The display was simply bewildering. So was the noise, for there must have been hundreds of roosters all crowing at the same time, and as many hens clucking. There were geese hissing; turkey cocks strutting and gobbling, puffing out their feathers and dragging their great wings on the cage floors; peacocks spreading

their gorgeous plumage for the admiring public.

"Gee whiz!" exclaimed Little Bob over and over again. "I didn't know there were so many chickens in all Pennsylvania!"

You would have felt the same way, too, if you could have been with the cousins; for here were white rock poultry, partridge rocks, dark barred rocks, light barred rocks, buff rocks, silver penciled rocks, Columbian rocks and blue rocks, just in one poultry family. There were also black Java hens, mottled Java hens, Rhode Island Reds, white Leghorns, black Jersey Giants, Brahmas—buff, light, dark, and other colors, Minorcas, black Spanish, blue Andalusians, and dozens and dozens of others, so that Little Bob grew weary of reading the names.

"Gee!" he said to Tom, "You'd think you were in a geography class, to read all these names." He wasn't far wrong at that, for the names indicated the regions from which these interesting birds had originally come, just as our own ancestors migrated to America from countless countries and various continents.

When they had tired of looking at poultry, Tom said, "Come on. Let's go see the horses and cattle."

Little Bob's eyes lit up joyfully. He was fond

of all sorts of animals. "That'll be great," he said.

It was, and the horses were greater still. For they were mostly Percherons and Belgians, and Bobby had never before seen such huge horses as these immense draft animals. In fact, he had never even heard of them. When he read the placards setting forth their long pedigrees, showing that some of them weighed far more than a ton, he was dumbfounded. Also, he had a little difficulty pronouncing their names.

"They are Per'-che-rons," said Tom proudly, glad of a chance to display his knowledge. "They are horses they developed in France, to pull great loads."

"Well, gee whiz!" replied Little Bob. "I'll bet they can do it. I'll bet they can pull a mountain."

When one looked at the enormous animals, with their great wide backs, tremendous hips and shoulders, and huge legs and feet, it seemed as though Little Bob must be just about right. Next to an elephant, they seemed to be the strongest thing on earth.

The cattle weren't so big, of course, but they were just as interesting. In fact, Little Bob was fascinated by some of them, for many of them had

been raised by boys and girls of the 4H Farm Clubs; and not only were they fine animals, but their youthful owners had fairly "dolloed" them up. The creatures were carefully brushed and combed, and many of them even had their coats of fur curled and waved and their horns shined and polished until they actually gleamed. Some of them had prize ribbons of blue or red or yellow attached to their horns or fastened over their stalls, where they would attract the most attention.

But the creatures that really filled Little Bob with joy were the sheep. He had always loved sheep. He had always wanted to have a sheep of his own. But as he was a town boy, with no place to keep such a pet, he had never been allowed to have one. Yet that hadn't prevented him from loving the little creatures and hoping that some time he might own one. In fact, he was determined that when he became a man and had a home of his own, he was going to have a sheep or two for his children to play with, and let the sheep graze on the front lawn. So you may be sure that he was delighted when he caught sight of the sheep pens, with their woolly inhabitants, which were mostly lying down peacefully and lazily chewing their cuds.

Up to this moment in Little Bobby's life, a sheep had been a sheep. It had never occurred to him that there might be many, many sorts of sheep, just as he had not realized that there were countless kinds of chickens. Now he speedily discovered that one sheep might be as unlike another as a blue Andalusian hen was different from a white Leghorn. For right in front of him was a pen that bore the sign "Shropshires," and close by was another pen labeled "Hampshires," and in a neighboring aisle his quick eye caught the name "Southdowns." Although he could not read the words on the more distant signs, he knew at once that each must indicate a different breed of sheep.

This new idea interested Little Bobby immediately, particularly when he caught sight of the "Rambouillets," with their black faces and amazing horns, that curled about like pieces of coiled wire bedsprings. The sight gave him a new idea. In some of the Bible stories he had read, he had seen pictures of the old Israelites on their march to Caanan, or when they circled the walls of Jericho, and their musicians were blowing on horns that looked almost exactly like the horns these interesting sheep wore.

"I'll bet that's what those horns were," he

thought, "Just sheep horns or goat horns cleaned and nicely trimmed so they could be used for musical instruments. I suppose they didn't have much metal in those days."



"TILL NOW, A SHEEP HAD ALWAYS BEEN JUST ANOTHER SHEEP"

Nothing he had seen in the entire show gave Little Bob more pleasure than this display of sheep. Here they were, so sleek and fat and well groomed and so gentle and trusting, that Little Bob wanted to climb right into the pens and stroke their soft,

downy heads. He felt sure the sheep wouldn't object, for no doubt many of them had been raised by boys or girls no older than he was, and were probably accustomed to being petted. But he remembered he had promised not to get into mischief, so he merely walked along and admired the various animals.

He began to speculate upon the sort he would buy when he grew up. Quite naturally, he was attracted by the sorts of sheep he had never seen before. He felt sure that the sheep he had noticed on farms in his own region must have been Shropshires or Southdowns. At any rate, he had seen lots of sheep that looked like the Shropshires and the Southdowns in the pens before him. But he had never seen any sheep like the Cheviots, with their sleek white faces, or the Rambouillets, with their curved horns, or the black-topped Merinos. He studied them all.

"Tom," he said, "when I grow up, I'm going to have some of these Cheviot sheep."

"Are you going to be a farmer?" exclaimed Tom. "I'm not. I've lived on a farm long enough. I'm coming to town to live."

"I am not quite sure about being a farmer,"

said Little Bob, slowly, "but I do want to raise sheep. Think of all the good times you can have on a farm, and all the pets you can have to play with. Why, gee whiz! They won't even let me keep a dog in town, and I want one so much. But these farm boys and girls can have no end of pets. Gee! It would be nice to have a flock of sheep all your own."

They finished their examination of the sheep and went on to the pig pens. But pigs didn't interest Little Bob so much. They didn't make good pets, like dogs or sheep, and anyhow, most of those on exhibition were so big and fat that all they seemed to want to do was to lie in their pens and sleep. And how some of them did snore!

"Well," said Tom, after they had spent a long, long time looking at the various sorts of animals, "there's just one thing more we ought to see, and that's the calf auction. Then we had better get back to Dad."

"The calf auction?" asked Little Bob, seriously. "Are they going to sell some of those calves? I don't suppose it would be possible to buy a calf, would it? Besides, I haven't any money."

"When you see the calves they're going to sell," laughed Tom, "you won't want to buy one. You're

thinking of nice little farm animals that you can make pets of. But these calves are beef animals, bred to produce the most meat possible. They're a year old, or so, and some of them will weigh half as much as one of those big Percherons. They're built like regular drygoods boxes—square and stocky."

"Then I don't believe I care about seeing the auction, if it's only big beef cattle they're selling."

"You will," said Tom. "Daddy asked me to be sure to tell him what the prize baby beef sold for. So I'll have to watch the auction for a time."

Into the judging pavilion they went and found seats. It was just like a little football stadium, with seats banked high on all sides, and a big oval show ring in the centre, carpeted with tanbark. Apparently Tom wasn't the only one interested in this sale, for visitors began to pour into the place so fast that soon every seat was taken, and there was hardly standing room.

Soon the prize animals were brought in, and the baby beef that had been awarded the first prize was put up for sale. It was a marvelous animal, so chunky and stocky that it did indeed fit Tom's description.

Occasionally Little Bob did the marketing for

his mother. He often bought a piece of meat, and he had an idea of what beef should cost. So when the bidding started on the prize animal, Little Bob was amazed. The bidding was brisk. Evidently many purchasers wanted the animal. The offered prices soared higher and higher.

"Gee whiz!" said Little Bob, astonished. "I don't see why they want to pay so much for beef. You can buy plenty of good beef for less than that, and the price is going higher all the time."

"It's good advertising for the purchaser," said Tom. "The farm kids always get big prices for their prize calves. The price will go higher. You watch."

Little Bob did, and his eyes opened wider and wider as one bid followed another and the price soared higher and higher. Presently the bidding slackened and presently stopped.

"Going, going, going," cried the auctioneer, and then paused for a long look completely around the ring. "Gone! Sold to Abernathy and Burrows for sixty-two cents a pound. There you are, ladies and gentlemen, this 1190-pound baby beef is sold for sixty-two cents a pound. Where's the boy who raised this animal? Step out here, lad, so we can take a look at you."

A farm lad struggled into the ring. His face was red in his embarrassment, but his eyes shone with the light of victory.

"Stand there beside your prize calf," said an official, "while we get a photograph. There! That's just right. Now snap the picture."

The photographer clicked his camera. The proud farm lad stepped back into his seat. The baby beef was led away, and the steer that won second prize was brought out, to be auctioned.

"I guess we had better be moving," said Tom. "There's a few more things we ought to see before we go back to Dad, and the time is getting short."

Meanwhile Little Bob had been doing some arithmetic. He had been multiplying 1190 by 62.

"Gee whiz!" he cried. "That calf brought \$737.80. I don't know why you want to leave the farm, when you can get \$700 for a single calf!"

Little Bob could think of nothing else for the remaining short time that Tom was guiding him about. Even when they got back to Room E, the matter was still in his mind.

"Uncle Bob," he cried, as he rushed in, "the prize calf sold for more than \$700. What do you think of that!"

Chapter III

What Bobby Saw at the "Master Farmer" Dinner

Impressive though the calf sale had been, the great Farm Show exhibitions and all the exciting events in this memorable day, everything else faded into insignificance in the mind of Little Bob when at last he sat at the big dinner in the huge hotel, to see his Uncle Bob made a "Master Farmer."

To begin with, the setting itself impressed Little Bob tremendously. Never before had he been in such a great dining room. Never had he seen such a strikingly beautiful place for a dinner, nor such a great display of shining white linen and sparkling glass and silver, for there were scores of diners at this great gathering, and dozens of tables, about which sat hosts of eager, smiling guests. Then, too, there was the speakers' table, at which sat the guests of honor and the speakers of the evening.

How beautiful it was, and how handsome some

of the men at the table looked—particularly Uncle Bob! Then there were the white-clad Negro waiters, bustling about with laden trays of food, and the orchestra that softly played entrancing music while the diners ate and talked. No wonder Little Bob thought it about as heavenly as any scene he had ever looked upon.

If the mere setting made such a deep impression upon his mind, how can one describe Little Bob's feelings when the last spoonful of ice cream was eaten and the last sip of coffee drunk, and the real event of the evening began—the conferring of the title of "Master Farmer" upon each guest of honor.

Little Bob had never been very much interested in speeches. Perhaps this was because most of the speeches he had heard were about matters that did not seem very closely related to him. But the talks on this occasion all came right home to him. At least, they all concerned farms and farming and particularly these outstanding farmers at the guest table. Was not Uncle Bob one of these, and did not every word spoken somehow relate to him?

So Little Bob sat and listened as he had never in all his life listened to any other speeches. It was surprising how greatly interested he soon was in

what the speakers had to say. They were all outstanding men: here was the Dean of the State Agricultural College, the State Secretary of Agriculture,



"... A GREAT DISPLAY OF SPARKLING GLASS AND SILVER"

and some of the very foremost farm leaders in all Pennsylvania.

How little Bob did thrill to hear all that was said about the "Master Farmers." When it came time for his Uncle Bob to receive his gold medal as

one of the "Master Farmers," the lad could hardly sit still, so fast was his heart beating, so joyous was his mind. When Uncle Bob was asked to arise while his citation was read, Little Bob not only joined in the applause but he was almost beside himself with happiness. Then, as the applause subsided, and big, handsome Uncle Bob stood smiling before the audience Little Bob fairly held his breath so he would not miss a single word of the citation.

"Ladies and gentlemen," said the speaker, "the recipient of this medal, Mr. Robert Merton Baxter, has been a farmer for more than twenty years and is an outstanding leader in all agricultural movements in his county. Like many other successful farmers, he began as a hired hand, and later worked for three years as a tenant farmer. Then, with the cash he had saved and the credit he had established by his exemplary conduct, he bought a farm of his own. On that farm he has established a system that has successfully stood every test. It is based on the maintenance of soil fertility, the large use of livestock, and efficient marketing methods."

Then, after telling how the Baxter farm had been increased from its original tract of seventy acres to an estate of two hundred and fifty acres,

the speaker said: "Mr. Baxter's herd of cows is headed by one of the champion bulls of the entire State. Some of his cows hold blue ribbons as the best producers in Pennsylvania. By his progressive system he has increased the average butterfat production of his herd more than twelve percent in five years. He raises a flock of more than two hundred turkeys for the holiday trade, and his high potato yield on various occasions has made him a member of the 400-bushel club. Mr. Baxter confidently expects that within a few years he will be producing five hundred bushels to the acre. And I happen to know that his gross income sometimes runs between \$25,000 and \$30,000 a year.

"Everything done on his farm is done with a thoroughness and finish which show that the owner is master of his job and not the slave of it. The buildings are splendidly kept up. The fences are whitewashed and always in repair. The stables are spotless. The home is in keeping with its surroundings. It is roomy, comfortable, 'modernized,' and beautiful enough to grace any estate. It looks out over a lovely landscape that is a picture of charm and delight.

"Mr. Baxter has long been superintendent of

his Sunday school. He is a trustee of the local schools. He has long been chairman of the board of trustees of his church. For several years he was a school director. He has even served as road supervisor and for two terms represented his district in the State legislature.

"In farm organizations he has the same distinguished record of service, for he has faithfully served both the grange and the county farm bureau. He is a member of several fraternal orders and is an outstanding member of the service club in the town nearest his home.

"Ladies and gentlemen, it gives me the greatest possible pleasure to present to Mr. Robert Merton Baxter, who has been such an outstanding servant of humanity, this gold medal in token of his achievements as a 'Master Farmer of Pennsylvania.'"

Little Bob joined in the thunder of applause that went up from the great assemblage. He clapped until his hands ached. Then he sank back in his chair and was soon deep in thought. He had always loved his Uncle Bob dearly. He had always thought his Uncle Bob was a wonderful man. But he had never dreamed his Uncle Bob could be all this. He had accomplished it through farming alone,

“Gee whiz!” thought Little Bob. “I never had the least idea that a farmer *could* be so important. I guess there isn’t any job in the world more important than that of the farmer—if he’s a good one.”

Chapter IV

Bobby is Promised a Wonderful Trip

Little Bob had little opportunity for thought, however, for the dinner was soon at an end. The moment the diners began to leave the tables Uncle Bob came straight over to his brother's party. Everybody at the table shook his hand and congratulated him heartily; indeed, so many smiling friends pressed upon him to express their good wishes that for a brief interval Uncle Bob couldn't say a word to his own party. But finally he was free of well wishers, and he turned to his namesake.

"Now, Little Bob," he smiled, "are you glad you came or not?"

"You know very well I'm glad," said Little Bob. "I wouldn't have missed this for— for— gee whiz! for a whole flock of sheep."

"Oho! so that's how the wind sets, is it?" laughed Uncle Bob. "So you like sheep?"

"I just love 'em," cried Little Bob. For a second he looked tenderly at his big uncle. "I'm so sorry Aunt Rachel was sick and couldn't come," he said.

"Now, that's mighty thoughtful of you," replied Uncle Bob. "We are all sorry. Of course, she has been to the Farm Show lots of times, so the show itself wouldn't have been any novelty to her. But she never saw me get a gold medal. Anyway, a fellow sort of likes to have his wife around on an occasion of this sort. You know, he isn't always sure that his wife thinks he is so much of a fellow; but when folks hand you gold medals, why, that ought to impress even a wife. Just remember that, Little Bob. When you get a wife, be sure to get some gold medals, too." And he laughed heartily at his own joke.

"When I get a wife," replied Little Bob, very seriously, "I'm also going to get some sheep, and they're going to graze in the front yard. *My* children can have some pets, as all children ought to have."

"Bless my stars!" cried Uncle Bob. "A philosopher at ten years of age! Your philosophy is right, too, Little Bob. And now that I know you like

sheep so much, I want you to meet Mr. Herbert Carroll, who sat on my left at the table. He is a sheep raiser, as you probably remember, for the toastmaster told us all about his wonderful flocks. He'll be glad to know any one who likes sheep, he's so fond of them himself.

"By the way, I want you folks to meet all the men who received gold medals tonight. We had a meeting this afternoon—we new Master Farmers—and we decided that this was such an unusual occasion for all of us, and we somehow seemed to like one another so well, that we decided we'd form a sort of association and try to exchange visits and get together once a year at the Farm Show and have a little banquet all our own."

"What are you going to call yourselves?" demanded Little Bob.

"The Master Farmers of 1935," laughed Uncle Bob.

"And who is the president?" asked Little Bob.

"You mustn't ask so many bothersome questions," replied Uncle Bob.

"Goody! Goody!" cried the lad, "I just knew they'd make you president, Uncle Bob."

His big uncle stood towering above him, smil-

ing. "You're a regular mind-reader, aren't you?" he said. Then, very seriously, he added: "Yes, they did make me president. I told them I'd set the example and make a round of visits to the homes of every one of the group. Now let's go over and meet Mr. Carroll."

The latter greeted them all warmly. He was a very pleasant man to meet, though he was perhaps a little shy. But it was quite evident that he liked Uncle Bob immensely, for they acted as though they had been friends for years.

After Mr. Carroll had shaken hands with them all, Uncle Bob turned to him and said: "You'll be interested to know that my nephew here is particularly fond of sheep. In fact, he has great plans for life. He's going to acquire a home, a wife and a flock of sheep all at the same time. So you can guess how much he likes sheep."

Uncle Bob never smiled, and his namesake did not dream that he was having a little fun at his nephew's expense. Mr. Carroll was equally serious about the matter. "Why not?" he said. "What can you name that is better than those three things—a wife, a home and a flock of sheep?"

He smiled down at Little Bob sympathetically,

then added cordially, "Before you secure any of them, you ought to look about a little at samples, don't you think? I don't know how you could start any better than by taking a look at my wife and my home and my sheep. So let's make a bargain. When Mr. Baxter comes to visit me next spring, you are to come along. What do you say?"

"Gee whiz!" cried Little Bob, joyfully. "You bet I'll come." He hesitated, then concluded: "That is, I will if Mother and Dad will let me."

"Oh, they'll let you all right. I'll see to that. We'll arrange it right now. You will have a spring vacation in your school, and that will be just about the proper time to come and see all the new lambs. So you and Mr. Baxter are to be my guests next spring. Now, that's an agreement, isn't it?" He turned to Little Bob's parents.

But Uncle Bob gave Little Bob's parents no chance to reply.

"Sure, it's an agreement," he said. "As president of the Master Farmers of 1935, I simply must have a secretary to accompany me on my official travels. So I hereby appoint young Robert Baxter as my secretary, and I assure you, Mr. Carroll, that in due season the president of the organization and

his secretary will visit you. If there is no more business to come before the meeting, I declare it adjourned. Now we can go and have a chat with the other members of our club. I want you to meet them all, particularly Little Bob, because, as my secretary, he may have to go with me when I inspect the farms of *all* the members. How about it, Mr. Secretary?"

Little Bob's eyes almost popped out of his head. "Gee whiz!" he cried. "Gee whiz! What do you think of that?"

Chapter V

Off to the Sheep Lands

If Little Bob was delighted at the prospect of visiting the genial sheep raiser, he was almost intoxicated with joy when it came time to make the actual trip, and good old Uncle Bob arrived at his home for an over-night stay before "the president of the Master Farmers of 1935 and his secretary" started on their journey to the western end of the State. For Mr. Carroll lived in Greene County, in the very southwestern corner of Pennsylvania, which is the great sheep-raising district of the State; although, of course, there are hundreds of small flocks of sheep on hundreds of farms throughout the entire Commonwealth.

Never will Little Bob forget that ride to the sheep lands. His own home was near the center of the State, and to reach Mr. Carroll's home, he and Uncle Bob had to drive almost three hundred

miles through the most magnificent and beautiful countryside—a countryside alluring with lovely farmsteads, wild and rugged mountains, drained by babbling streams and lovely rivers, and beautified in every imaginable way by the touch of Mother Nature's deft fingers. Such a ride Little Bob had never had before, and it fairly thrilled his heart.

Particularly was he interested when they approached the sheep regions, beyond the rugged Allegheny Mountains; yet nowhere had he seen country more picturesquely broken, with more hilly slopes, more velvety pastures, more delightful little brooks in the bottoms. For although the mountains were now behind the travelers, this region was so crumpled and furrowed that Little Bob said it looked as though it had been squeezed together like an accordion.

That wasn't a bad description, either; for the land certainly did look as though some great giant had placed his hands at either end of the county and squeezed the countryside together until it was folded up and down in a million deep wrinkles and crevices. It was truly astonishing how hilly the land was. Every hill looked as smooth and soft as though it were carpeted with green velvet. That

was because the hillsides were all pastures, and the sheep kept the grass trimmed as neatly as a lawn mower could have done it. Only countless little woodlots broke the smooth stretches of these vast and wrinkled grazing regions. Of course there were also ragged areas where jagged rocks punched up through the earth, like clusters of huge warts on the landscape.

Mr. Carroll's home was a place of such loveliness that Little Bob cried out with pleasure when he caught sight of it. There the house was, a charming white dwelling of Colonial type, with a Mt. Vernon portico running the length of it. The residence sat well back from the edge of a vast, natural terrace, so that it stood high above the great reaches of pasture lands before it, thus commanding a delightful view over the smooth meadows and the lovely stream that wandered through the bottom. The home itself was delightfully shaded by old, towering trees, and made even more attractive by a delightful arrangement of shrubs and flower-beds. A spacious gravel drive led up to the welcoming porch. It all made Little Bob think of some of the charming plantation homes in the South that he had seen in pictures; he was sure that the life within

this home must be just as delightful as that on any plantation or in any home.

Evidently their hosts had seen them from afar, for even before Uncle Bob's car rolled up the drive Mr. and Mrs. Carroll sallied out on the porch and stood waiting to welcome them. What a welcome it was! Mr. Carroll shook their hands warmly, then introduced them to his wife. Little Bob fell in love with her at once, she was so cordial and so kindly and so good to look at. Somehow she instantly made her guests feel perfectly at home.

A nice meal was ready, and Little Bob will never forget how much he enjoyed it, as he sat beside their hostess and told her all about their drive and about his hopes and plans. For somehow, she didn't talk about herself as many folks do, but got Little Bob to talk about himself. That certainly made him feel at home. While he and Mrs. Carroll were enjoying such a nice chat, Uncle Bob and his host were having just as good a time, only they were talking farming.

There was still time, after the meal, for them to look about a little before dark; so Mr. Carroll suggested that they stroll about and lay some plans for the morrow. Mrs. Carroll begged off, as she

had household matters to look after, so Mr. Carroll and his two guests sauntered off for a trip of inspection.

"Gee!" said Little Bob. "This is the wrinkliest country I ever saw. It's all folded up."

Mr. Carroll laughed. "That's a good description," he said. "It certainly is folded up. But it happens to be just ideal for sheep raising. We must have well drained pastures for sheep, you know, and we certainly get them here. Then, too, the grass that grows here seems just made for sheep. Furthermore, hilly land like this isn't so valuable as flat, bottom land, so the taxes are less and it isn't necessary to make so much profit to come out whole on your investment. So, altogether, Nature did a pretty good thing for us sheep men when she squeezed up this corner of Pennsylvania, didn't she?"

"Then I suppose this whole area is used for sheep raising," said Little Bob.

"It is, and they used to raise even more sheep here than they do today. In fact, both Greene and Washington Counties were once almost exclusively sheep-raising districts. But the development of the steel industry in and around Pittsburgh, with the



"... A REAL OPPORTUNITY FOR MEN WHO LOVE SHEEP"

building up of such large towns about that city, created so great a demand for milk that in Washington County milk production has very largely replaced wool growing. But there is a big strip of Washington County, running up along West Virginia, where sheep still are the main farm crop. You see, you can ship wool and meat almost any distance; but milk has to come from relatively near places. So as large cities grow, the farmers around them just naturally become dairymen, or else they raise perishable vegetables."

"Do we Americans produce all the wool we need in this country?" asked Uncle Bob.

"Gracious, no," said their host. "Our annual wool crop is about 300,000,000 pounds. Yet we import as much more every year. Our 1934 farm census shows that in that year we had 51,370,000 sheep in the United States. So it looks as though we could have 100,000,000 and still not be overstocked with sheep."

"Looks as though there might be a real opportunity for more sheep raisers," commented Uncle Bob.

"Yes, for men who love sheep," replied Mr. Carroll. "They almost always make a success of

the business. But somehow, men who raise sheep merely to make money out of the business, often fail. It's odd, isn't it?"

"Not at all," said Uncle Bob. "I don't believe a fellow can make a real success in any line unless he really likes the work. You know, it's the trifles that bring success. It's doing little things that perhaps can be skipped or avoided. The fellow who doesn't love his job never does those little things. The man who does, never neglects them. Don't you recall the old adage: 'For want of a nail, a shoe was lost; for want of a shoe, a horse was lost; for want of a horse, a rider was lost?' That tells the whole story. A rider who loved his horse would have seen to it that the animal was properly shod—always. Then, in a pinch, the horse would have been 100 per cent fit for service. But that rider was probably one of those fellows who said 'What difference does one nail make? Let it go. I'll fix it some other time.'"

The speaker turned to his nephew. "Little Bob," he said, "you know I am not much for preaching. But I want you to remember what I've just said. More often than not, the price of success is taking care of the little things. The big things are

so obvious that they get taken care of anyway."

"That's true," said their host. "One of these 'little things' in the sheep business is keeping watch on the industry and noticing where it is going and staying with it."

"What do you mean?" asked Little Bob.

"Most sheep farmers who fail," replied their host, "still think that sheep are sheep, and wool is wool. That isn't true at all. We've been raising sheep in Pennsylvania since the very beginning of the colony. At first, we raised sheep almost purely for their wool. William Penn erected woolen mills as early as 1689, to encourage wool production. That was almost two hundred and fifty years ago. Today, we do not raise sheep primarily for wool at all, but for lambs to eat. When you grow sheep for wool, you have to keep your animals as long as they make you a profit. So all your meat is mutton. Englishmen like mutton, but in this country we have developed a taste for lamb. So we have to sell our sheep young. The man who has kept abreast of this change is making money on his sheep, but those who are raising sheep the way they did a hundred years ago are probably losing money. Do you understand what I mean?"

"Sure," said Little Bob, "though I never thought about that. I always supposed that sheep were sheep. But what did you mean when you said that wool wasn't wool, any more?"

"Simply this. There are all sorts of wool—short, medium and long wool, and fine, coarse and very coarse wool, and wool that shrinks a lot and wool that shrinks very little. Fabric making is now highly specialized, and different weavers want different sorts of wool. If you grow a particular sort, you can prepare it better for a specialized market and get the very top price; whereas, if your wool is a mixture from different sorts of sheep, or is poorly prepared or graded, it won't bring nearly as high a price, and yet the grower has just as much trouble and expense in producing it."

"Of course," said Little Bob. "But I never thought about that at all. What sort of sheep do you raise, Mr. Carroll?"

"Merinos. They're mighty interesting animals, and there's a little history lesson for you in connection with them. When President Thomas Jefferson, in 1807, placed an embargo on American ships to prevent them from sailing abroad, in his effort to avoid a war with either England or France, he al-

most ruined American manufactures, because they couldn't get enough raw materials from abroad. So factories had to close. New England was so hard hit she threatened to withdraw from the Union. One of the things New England lacked was wool for her mills. So we began to raise more sheep to produce our own wool. Somehow, in about three years, perhaps 8000 Merino sheep were brought into Philadelphia from Spain."

"And you have sheep that came down from those first Merinos?"

"Exactly. They didn't do so well in the country around Philadelphia, so they were gradually moved westward, toward the frontiers. Lots of them found suitable homes right here in what are now Washington and Greene Counties. But they didn't stop here. They really became the foundation stock for the entire U. S. sheep industry.

"You see, the Spanish sheep were accustomed to traveling through the mountains as they grazed, and so were very rugged and hardy. Furthermore, it was their habit to travel, feed and rest close together and that made them much easier to care for. As they produced the very finest of wool, they were almost the ideal sheep. So it is no wonder that those

few thousand animals became the foundation of a great wool industry. For the United States, you know, ranks third among all the nations of the earth in wool production."

It had now grown too dark to see well, so the three made their way back to the house, and there, before a cheerful open fire, they continued their conversation.

"Tell me about your own Merinos," begged Little Bob.

"I raise Type A Merinos," smiled Mr. Carroll. "There are three types—A, B, and C."

"What's the difference?"

"Well, all Merinos are tremendous wool producers. As you will see tomorrow, the wool hangs on them in great folds. In fact, they are wrinkled up with folds of wool—as wrinkled as these hills that you described to me. The A type has the most wool folds. Type B sheep produce more mutton and a little less wool. The C type animals have relatively few wool folds."

"How much wool will one sheep produce?" asked Little Bob.

"You'll be surprised," said Mr. Carroll. "Most sheep will yield perhaps eight to ten or twelve

pounds. But a Merino ram a year old will shear twenty-five to thirty pounds. A year-old ewe will shear fifteen to twenty-five pounds. That is, of course, 'grease wool' or unscoured wool. The fleeces won't weigh so much when they have been scoured and the grease removed."

"Why do the rams give so much more?" demanded Little Bob.

"They're bigger. A year-old ram will weigh one hundred and forty to one hundred and seventy-five pounds, but a ewe will be only eighty-five to one hundred and thirty-five pounds in weight."

"Of course," said Little Bob. "That was a foolish question. But gee whiz! Those rams are certainly big. Why, I don't weigh one hundred pounds yet, and I am ten years old."

"You're wrong about the sheep, Little Bob. Merino rams are not large at all. They are nothing compared to Lincoln sheep. A Lincoln ram will weigh as much as three hundred pounds, and a Cotswold will weigh two hundred and seventy-five. So you see they come in different sizes, just as they produce different sorts of wool. In twelve months a Cotswold sheep will grow wool ten to fourteen inches long. If you never saw Cotswold sheep, you'd

be interested in them. Their long wool twists up and hangs down their sides and over their faces in long curls, just like the curls little girls used to wear. But the wool is so coarse it isn't worth much. It is used for making braid and coarse fabrics."

"Well, gee whiz!" cried Little Bob. "Think of that—sheep with wool a foot long, that hangs in curls! How long is the wool from your Merinos?"

"Not more than two inches. But a Type C Merino will produce wool three inches long. Merino wool is the best quality wool produced in America. It is fine, strong and soft, of excellent spinning quality, and it shrinks less than other fine wools."

"I've been wondering about all these sheep breeds," said Uncle Bob. "How do you classify them, anyway?"

"Well, first we divide them into mutton types and wool types, according as they are raised for meat or wool. Then there are medium wool and long wool and fine wool groups."

"Which is which? That is, where do the different breeds belong?"

"In the mutton type—medium wool sort—that is, sheep raised both for food and wool—we list the Shropshires, Hampshires, Dorsets, Southdowns,

Cheviots, Oxfords, Suffolks, Tunis, Corriedales, Ryelands, Columbias, Panamas and Romerdales. In the mutton type—long wool group—are the Lincoln, Cotswold, Leicester, Romney Marsh, and Blackfaced Highland breeds. The fine wool type includes the three sorts of Merinos, two types of Rambouillets, and Tasmanian and Australian Merinos. Then there are the Karakuls, raised for their fur, for making fur coats.”

“Gee!” said Little Bob. “That sounds like another geography lesson.”

“It is,” laughed Mr. Carroll. “You can almost read the geography of England in those breed names. The Hampshires came from the light, chalky lands in south central England, along with the Dorsets. The Southdowns came from the downs of southeast England. This is the oldest of all breeds of medium wool sheep. The Cheviots are natives of the Cheviot Hills, which form part of the borderland between England and Scotland, and the Oxfords might almost be called college bred, for they came from the region close to England’s famous Oxford University. The Lincolns came from Lincolnshire, the low country in the west of England, and the Cotswolds from the Cotswold Hills of

Gloucester. So it goes with all of them. They mostly carry the names of their birthplaces."

"That is interesting," said Uncle Bob, "and highly suggestive. You said the Spanish Merinos did not do well in the low humid lands about Philadelphia, but thrived well in these high hills of Greene County. Is it so with these various English breeds?"

"Exactly so. Those that have lived long on the downs or lowlands, don't seem to do well in the highlands. But breeds like the Cheviots are just fitted for hilly countries. The fact is that sheep are more or less like plants—some do well in one location, and some in another."

"I see, and one of the 'little' things an intelligent sheep raiser has to do is to know all about the history of the different breeds so he can pick the sort best suited to his conditions—just as you have done."

"Of course," said Mr. Carroll. "That is always part of the price of success—knowing about all there is to know concerning your field. It is only by being informed in these matters that one understands that there is no *best* breed of sheep, but that there may be one best suited to one's own conditions."

Uncle Bob yawned, then apologized. "It looks to me as though the thing best suited to my present condition," he laughed, "is a good bed. We got up early this morning, Mrs. Carroll, and so we have put in a long day. I hope you will pardon me for being sleepy."

"I hope you may sleep so well that you will feel as frisky tomorrow as some of our March lambs," laughed their hostess. "It is time we all were abed. Herbert, will you please show our friends to their rooms?"

Chapter VI

How They Destroyed the Sheep Killer

Mrs. Carroll's soft beds and the tonic air of the Carroll homestead did indeed make the visitors as frisky as spring lambs. Little Bob could hardly wait to eat breakfast, so impatient was he to see more of this alluring countryside and its picturesque flocks of sheep.

Unlike the huge and towering barns of his own region, the sheep barns and shelters here were relatively low and snug, although they spread over a considerable area. They were built that way to make them warmer, and to provide ample room for many separate pens so that the different bands of sheep could be separated, and ewes with their lambs could be shut off from the general flock. These separate pens or "creeps" interested Bobby, as did the feeding racks in which hay and other roughage was kept so the little lambs could nibble at it as soon as possible

and thus quickly learn to eat hay and grass. For their mothers could not be expected to feed them forever.

After they had inspected the sheep barns carefully, the party strolled through the pastures. There seemed to be no end of separate fields, all closely grazed, and each pasture was enclosed by woven wire fencing. This was so different from the ordinary three-or-four strand barbed wire fence that Little Bob was accustomed to see in his own country, where dairying was the main farm industry, that he asked about it.

"Won't barbed wire keep your sheep in?" he inquired.

"Yes, it will," said Mr. Carroll, "but the barbs pull out lots of wool when the sheep press against it and more or less snarl the fleeces. So it isn't so good for that reason. But the main reason we use woven wire fencing is to protect the sheep from dogs. You have no idea how many thousands of sheep are killed each year by dogs, just in this one state.

"The worst feature of the matter is that no dog is above suspicion as a sheep killer. Dogs, you know, are descended from wolves. Although the wolves are a good many hundred generations in the past,

there seems to be something wolfish remaining in almost every dog. It is a rare dog, indeed, that doesn't like to go hunting at night. Thus dogs that are above suspicion in the day time, slink away at night and ravage the sheepfolds. You never can tell whose dog may be guilty. Our only protection is stout woven wire fences, and even then dogs somehow get into the pastures and slaughter some of our sheep. It's almost impossible to discover what dogs do it. So we hold all dogs under suspicion."

They had now reached a point far from the farm buildings, and had crossed over one or two small ridges until they had reached a rough piece of land where there were more ragged rocks than grass. Also, several little patches of woods helped to give an air of real wildness to the place.

Suddenly Mr. Carroll strode rapidly away from his guests, almost running toward a little rocky outcrop. His keen and practiced eye had caught sight of something his guests had not even glimpsed. In some wonderment they followed him. But before they reached the rocks, Mr. Carroll stooped and dragged into full view the lifeless body of a sheep—or rather what was left of it, for perhaps a quarter of the carcass had been torn off and dragged away.

Turning to his visitors, Mr. Carroll said sternly: "Here's an example of what I have just been telling you about. A ferocious dog somehow got into this pasture some time lately. You see the result."

"Can't we trail him and shoot him?" inquired Uncle Bob.

"I wouldn't be surprised if we could. This is an unusual case. Marauding dogs don't often carry away parts of their victims. The act of this dog suggests that here is no ordinary house dog, but perhaps a dog gone wild, and living in a den somewhere in these hills. We believe that there is such an animal about, for numbers of sheep have been killed on neighboring farms of late, and in several instances the marauder has been seen. It looks so much like a wolf that some sheep raisers have come to believe that there must really be a wolf around in these hills again—although it is decades since the last known wolf was shot hereabouts."

"What do *you* think, Mr. Carroll?" asked Little Bob, all afire with interest. "Could it really be a wolf?"

"It could, of course. A wolf could have escaped from captivity, making its way to this region and

finding a suitable den to live in. But more likely it's a dog that has gone back to wolfish habits. Anyway, we may find out this time, for if the animal that killed this sheep is a dog gone wild, then it will probably have a den. Most likely it started to drag that sheep leg toward its den. We'll see if we can find any tell-tale tracks."

The ground in this upland pasture was firm and hard, packed down by the feet of numberless sheep. Also, it was rocky and flinty. But it was plain enough where the creature had dragged the lamb quarter. The grass and earth were roughened, plainly indicating the trail. Slowly they followed this, until Mr. Carroll spied a little depression in which moisture had evidently collected, making the earth soft. Right in the center of this spot was a huge track, as plain as a plaster cast.

"A dog," said Mr. Carroll instantly, "and a tremendous animal, if that track can be trusted."

"Shall we push on after it?" asked Uncle Bob.

"No. We'll get back to the house as fast as we can. This is what we have long been waiting for—a chance to trail this marauder to his den. For this big dog has been preying on all the flocks around here for some time, and we have never been able to run

it down, although it has several times been sighted. We sheep men have had several meetings to discuss the matter and we are perfectly organized for a hunt. All we have been waiting for is a chance like this. My neighbors will assemble here for the chase the instant they get word. My job is to notify them as soon as possible."

Rapidly the three pushed for the house. Once there, Mr. Carroll sat down to the telephone and called his neighbors, one after another. In no time, cars began to roll up to the house, bearing men armed with rifles and shotguns, while other neighbors came galloping up on horseback. Soon the entire group was on hand. As the hunt had been previously planned, it was not necessary to spend a single minute in discussion. The pressing need was to get to the place where the sheep had been killed and trail the marauder from there.

Rapidly both the horsemen and those afoot made their way to the rocky outcrop where Mr. Carroll had found the carcass. Uncle Bob and his nephew, although unarmed, of course went along. Mr. Carroll led the way to the damp spot where all took a good look at the track of the killer.

"Now, boys," said Mr. Carroll, "take your places

and we'll push ahead as fast as the trackers can follow the trail."

At once the horsemen rode far out on the flanks, and those afoot stationed themselves at intervals, so that a long line was formed, which reached for a great distance on either side of the trail. The plan was to keep the line as straight as possible, advancing as fast as the trailers could determine the way.

The latter were able hunters, well skilled in tracking. It was astonishing how fast they pushed along; but this was due more to the fact that the dragging sheep's quarter had made a plain trail than to their being able to pick out the dog's footprints. So long as the dog had continued to drag the meat, it wasn't necessary to look for footprints. So the party forged ahead as fast as the footmen could walk. All the time the horsemen widened the line, riding farther and farther to right and left as the hunt proceeded. Even to Little Bob it was evident that it would be difficult for any animal to run the gauntlet of gunfire from this extended line and escape.

On went the hunt. The quarry had perhaps been taking the meat to young ones in a den, for it had not stopped to eat, apparently, nor even to rest. So

the hunters pushed on, over hill and dale, the flankers scouting carefully through every woodlot, peering into every clustered jumble of rocks, and making sure that the game should not fool them by backtracking and hiding until the line had passed.

The country grew wilder, for the hunters soon passed beyond the fenced farm lands and were toiling over hills that were too rugged even for grazing. On they pushed, now more slowly and cautiously, examining every upstanding rock behind which an animal could hide, and scouting more thoroughly in every patch of woodland.

They found nothing, for the trail went straight on, bending to right or left only when the vagrant killer had to deviate from his route to avoid rocky outcrops or entangling tree growths. It was evident that the animal had the fixed purpose of taking his "kill" to some definite spot. That spot was most likely a den in the rocks.

At every approach to a rocky outcrop, therefore, the hunt slowed down, while the hunters cautiously approached the rocky breasts, rifles ready, and carefully examined every foot of the way.

At last the eagle eye of Mr. Carroll saw, far ahead, at the foot of a little rock escarpment, what

seemed to him like a dark hole. Instantly he raised his arm and waved a silent warning. On either hand the hunters repeated the warning, and the whole line was immediately tense with expectation. Every rifle was gripped in readiness for instant use. Then, as quietly as men could walk, they stole cautiously forward.

The spot that Mr. Carroll had detected was still far in advance of the line. It might prove to be only a black rock. It might really be the opening to a cave. But even if it were a cave there was no certainty that it was the killer's refuge. The trail led straight toward it, however.

The place was still so far away that there was no certainty of hitting anything that might come dashing out of it in an attempt at escape. So once more Mr. Carroll raised his hand in warning, the signal was repeated down the line, and the hunters proceeded with added caution, almost tiptoeing their way toward the cave.

For as the men drew nearer, it became quite evident that there really was some sort of opening that led down under a towering breast of rock. And now, as they drew nearer, the trackers could see plainly that the trail they were following led straight

to the mouth of this cave.

Every gun was raised in readiness. Every hunter was nervously alert for a lightning shot. At a signal the flanking horsemen pushed cautiously ahead to encircle the den and make sure that no fleeing animal could escape.

Soon the circle was complete and the hunters began to converge toward the rocks, each man with his gun held ready. The circle narrowed. The trackers came up to the rock breast. There could no longer be a doubt. This was a den, and the animal had gone into it. The trail was plain. The quarry must be within the cave.

But nothing could be seen of the creature. The opening into the rock quickly narrowed to a passage hardly wide enough for a man to crawl through. At least, a large man could not have made it. At the end of perhaps twenty feet, the passage wound around a rocky shoulder, so that it was impossible to tell how long the passage was or what it led to.

"There might be some other outlet," suggested one of the hunters, and instantly men scurried about looking for other possible entrances to the den. They found none, but several of them took their stations at some distance from the rock breast, in a great

circle, as a precaution.

"There's only one way to get that animal," said Mr. Carroll, "and that's to go in after it, the way General Israel Putnam got the wolf up in Connecticut. And so, as I happen to be thin, and as it was my sheep that was killed, I am going to do the job."

Without another word, he whipped a powerful flashlight from his pocket. With that in his left hand and his cocked gun in his right, he started into the opening on his belly. With elbows and toes he hitched himself along, his powerful beam lighting the way before him. In no time, he reached the angle in the passage, and so narrow was the way right here that he had some difficulty in squirming his body past the turn, and a second later his feet also disappeared from sight. There was nothing for his fellow hunters to do now but stand and wait. They waited anxiously.

Meantime Mr. Carroll was worming his way cautiously forward through the narrow tunnel. In places it was so narrow that he could barely squeeze through. He knew he would be at a terrible disadvantage if the savage animal suddenly rushed him. So he kept his right arm well advanced, his gun pointed dead ahead, his finger on the trigger.

Once he paused and studied the situation carefully, for he could see absolutely nothing. The tunnel seemed to come to an abrupt end, like a blind alley. On he went, searching out every inch of the way with his powerful light. Still he could not detect any sign of his quarry. Presently he discovered the reason. The tunnel made another turn.

This presented a difficult situation. He would have to shove his arm and his gun around the bend before he could see what was beyond the corner. Carefully he squirmed up to the shoulder of the tunnel and lay there listening. For many seconds he hardly breathed. He was listening for the sound of an animal's breathing or for any other sign that would betray the presence of a creature beyond the bend. No such sound could he hear. Yet so deep was the stillness that he heard the ticking of his own watch.

Knowing that animals fear flame, he thrust his flashlight round the corner, thinking it might be a substitute for a flaring pine knot. Then he shoved his body rapidly forward until he could see round the bend.

Now he did indeed see something that made his pulse beat faster. For far down the narrow tunnel,

which now continued in a straight line, a pair of eyes shone reddish yellow in the light of his torch. They were terrible, wicked eyes, and a menacing growl came rumbling back along the narrow passage.

Mr. Carroll paused to size up the situation. At once he saw that the passageway soon began to widen, and that it ended in a roomy little cavern that gave the snarling dog ample space to move about freely. Also, he noted that if he could move forward only a few feet the passageway was so much wider that he would have greater freedom of movement and could handle his gun more effectively. He decided to crawl farther before shooting.

But the instant he moved, the dog started as though touched by an electric wire. Ferociously it bared its fangs. Its hair rose in a stiff mat about its shoulders. Bloodcurdling growls rumbled in its throat. It snarled viciously. It gathered its feet together as though about to spring forward. Then, before the hunter could even raise his weapon to aim, the beast leaped madly toward him.

The glare of the electric torch had evidently confused it, for the creature's leap brought it heavily against the top of the tunnel, where the roof sloped

suddenly down to the narrowing passage. The animal was knocked to the floor. But springing to its feet, it continued its savage rush, its teeth bare, its lips drawn back, its whole body aquiver with savage fury.

Only the sudden further narrowing of the passageway saved the hunter from a desperate hand to hand struggle. For as the snarling beast came to the narrow way, it necessarily flattened itself against the earth. There was no room for it to launch forward in a great leap on the back of the hunter. Yet it surged viciously on toward the blinding light that had aroused its anger.

The hunter had no time to aim his gun. All he could do was to press the trigger. There was a deafening roar that almost stunned him, and a terrific flash of flame. Yet the charging beast came straight on. Only part of the load had hit it, and this had made it all the more desperate.

Viciously it surged forward. Mr. Carroll tried to steady his gun and pulled the second trigger. Again there was a deafening roar and a flash of flame, and the oncoming beast stopped with its fangs almost against the hunter's shoulder. But it was

as dead as a stone. The entire load of shot from the second cartridge had gone through its heart.



"THE ENTIRE LOAD OF SHOT HAD GONE THROUGH ITS HEART"

Chapter VII

The Visit to the Grape Country

When Mr. Carroll finally wormed his way out of the cavern and dragged his quarry out before his anxious comrades, there was great rejoicing. There could be no doubt that this was the animal that had ravaged their sheepfolds, and every man went home relieved in his mind.

Both Uncle Bob and his nephew were glad to have had a part in the hunt, and Little Bob was especially happy to know that the little lambs and sheep would now be safe again. That thought made his departure a very happy one.

For Uncle Bob's plan—which he had not previously mentioned to his nephew—was to make a brief visit at the homes of several of his fellow Master Farmers who lived in the western end of the State. So he cut short the delightful stay with the

Carrolls, and early next morning Little Bob found himself again on the road with his big uncle.

This time they were headed north. They were going to see Mr. Henry Breck, who lived in the fruit belt on the shore of Lake Erie, and who was an outstanding grape raiser. Little Bob was delighted, because he hoped he might be able to view that great inland sea, about which he had read so much, and also because he liked Mr. Breck. In his brief meeting with the grape raiser at the Farm Show, he had taken a great liking to him. The story of Mr. Breck's success, as related at the Master Farmer dinner, made Little Bob admire the man immensely. So, although he hated to leave the Carrolls, he was well pleased to know that he was going to the Brecks. He would have been still more pleased if he could have known all the interesting things that were before him on this day's journey.

When Uncle Bob showed his nephew their route on the map, Little Bob was filled with joy; for they were to go straight up U. S. Route 19 to Erie. That meant they would pass through Pittsburgh, which Little Bob very much wanted to see. Then they would go directly on to Erie, where they would turn to the right and ride toward Northeast, the capital

of the Pennsylvania grape country, near which Mr. Breck lived. That ride, Little Bob was sure, would show him a lot of the famous lake.

They reached Route 19 at Waynesburg, and at good speed rolled on through Washington and Canonsburg toward Pittsburgh, the steel centre of America. Little Bob had heard it called the "Smoky City," and soon he knew why it was so named. For long before they reached the outskirts of the town he saw the great smoke pall that hung, not only over Pittsburgh, but over all the surrounding countryside as well.

Pittsburgh was even more wonderful than Little Bob had believed it would be. To please him, Uncle Bob drove about the town, and his nephew saw the towering buildings of the commercial district, and the great, high bridges that span the rivers. But the thing that impressed him most was the rivers themselves, for the Allegheny and the Monongahela unite at Pittsburgh to form the mighty Ohio. Along these vast water fronts were moored endless barges loaded with coal and freight of every description; flat-bottomed, square-ended river steamers; lighters and huge floats carrying long strings of freight cars; footboats, and the other innumerable

floating objects that are found along a busy river shore. There were endless railroad tracks, too, on which innumerable trains were shifting or loading or unloading freight and countless trucks coming and going and an army of stevedores ceaselessly working, so that the waterfront for miles was as busy as a bee hive.

Uncle Bob drove his car down to the very point where the two streams unite, but his nephew did not realize why he was doing this until Uncle Bob stopped the car in front of a peculiar little structure that stood on the point in a lovely little park, and suggested that they alight.

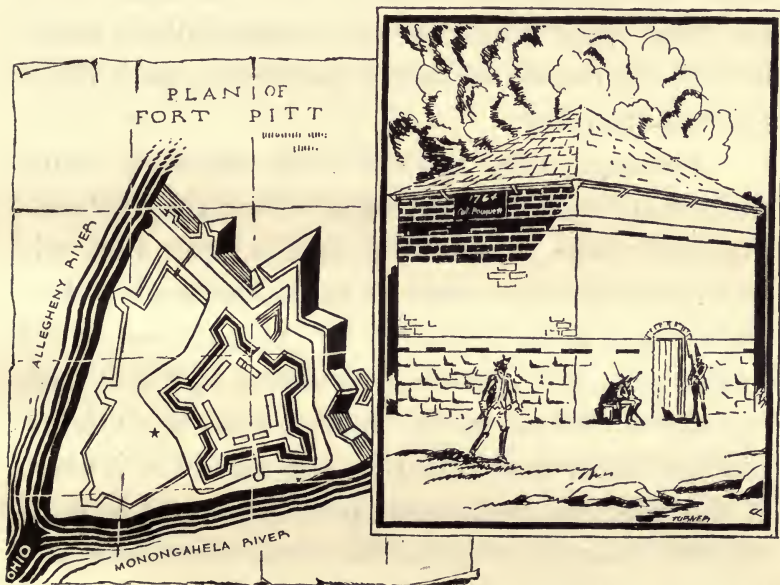
The broad waters of the Allegheny swept down on the right, and the Monongahela on the left, uniting before Little Bob's very eyes to form the majestic Ohio that flowed rapidly away to join the Mississippi. Straight down this new-born stream rose a wonderful bridge, a towering steel structure which arched above the flood as a rainbow arches from hill to hill, connecting the two shores of the Ohio—the southern bank towering high with an almost-perpendicular face of rock, and the northern shore low and level. It was indeed a view to stir the pulse.

But when Uncle Bob turned his nephew about face, and told him to look well at the little squarish brick structure beside which they had stopped, Little Bob got a thrill of another sort. He was staring straight at what was left of old Fort Pitt—the English fortification that had succeeded the ancient French stronghold, Fort Duquesne, when England wrested this gateway to the West from France.

Little Bob realized that he was standing on the very ground on which George Washington had often walked and for which he had struggled so hard, first as a messenger to warn the French away, and later as a soldier to wrest the land from the Frenchmen's grasp. For Fort LeBouef, whither he carried his warning message to the French commandant, was not so many miles north of this spot. Not far to the east was the site of Fort Necessity, where Washington had been compelled to surrender to a superior French force; the scene of Braddock's disastrous battle with those same French and Indians in a later struggle to take Fort Duquesne by force of arms. But how different now was the scene which Little Bob viewed; this great and towering city, where once had only been endless forests and the little stockaded fort at this very point where he now

stood.

Wonderful also was the remainder of the ride to Erie. Their passage through this rugged region, with its deep gorges, numerous rushing rivers, tow-



"... THE VERY GROUND GEORGE WASHINGTON HAD TROD"

ering precipices, and ragged hilltops, made Little Bob comprehend the terrible hardships of travel in the days when Washington, with one or two companions, journeyed hundreds of miles through the forest to carry his warning to the French.

Perhaps the very ruggedness of this region emphasized all the more the startling change in the countryside when they reached the city of Erie and turned northeast along the lake shore. For here there were great stretches of flat and sandy land; the road rolled almost straight ahead, like a length of ribbon, instead of twisting endlessly as it did in the hilly country.

Although they were a little distance inland, there were numerous places at which they obtained excellent views of the lake itself. Little Bob, who had never seen the ocean or any other large body of water, was almost stunned by the vastness of this inland sea—an expanse of tumbling surf and flashing waves that seemingly had no end—a stretch of restless water that rolled on and on to the horizon. It was past comprehension, past belief. Even in his wildest imaginings Little Bob had never been able to picture truly such a sheet of water.

But Little Bob had small opportunity to meditate upon this marvel, for the fifteen miles between Erie and Northeast was passed so quickly that he hardly realized they had left the former city before they were approaching the latter. Meantime, there had been much beside the inland sea that

demanded attention. For here, lying along the lake shore in a belt a few miles wide, is a strip that contains some of the finest land in Pennsylvania. Its great fertility, the ease of cultivating it, and the protective quality of the lake-shore atmosphere, where the dampness and fog from the water act like a great blanket to protect growing plants from severe cold, make this one of the greatest fruit-growing regions in all Pennsylvania.

Especially is it the centre of the Commonwealth's grape growing industry. Very well Little Bob could recall that his father had often brought home ten-pound baskets of luscious grapes, which bore labels showing that the fruit had been grown at Northeast. All this whetted Little Bob's appetite to see more and learn more of grape production.

So he was glad indeed when his uncle turned into a side road, and after a short run through marvelous orchards and vineyards, turned into the driveway of an attractive home. The mail box at the roadside bore the name "Henry Breck." So Little Bob knew they were at their destination. And once more he was impressed by the beauty, the spaciousness and the obvious comfort of a first class country home.

Cordial indeed was their welcome, and at once Little Bob felt at home. Also, he had suddenly become immensely interested in this business of grape culture. He had never before seen a real vineyard, and the sight of all these acres of grape vines, now being harrowed and prepared for the growing season, aroused his curiosity. So he was glad, when, after a pleasant chat with Mr. and Mrs. Breck, the former suggested a trip through the vineyards. There was a lad in the family of Little Bob's own age, but unfortunately he was away on just the same sort of a trip that Little Bob was enjoying. He was visiting some friends during the Easter vacation.

The Breck farm proved to be small, compared with the Carroll estate. But every inch of Mr. Breck's fifty acres of farm land was occupied with some sort of productive plant. There were apples and pears and peaches and plums as well as grapes. But as Little Bob had seen lots of orchards in his own country, his main interest was in the vineyard.

There was a huge vineyard, almost perfectly level, and the long rows of vines seemed to Little Bob to be almost endless.

"We plant the vines eight feet apart," said Mr. Breck. "That is as close together as we can put

the rows, for you see we must drive the horses between the rows to cultivate the soil. We harrow six times each season with a disc harrow and cultivate deeply, too. Then we apply liberal dressings of fertilizer, and late in the season sow a cover crop of winter vetch or rape or clover to blanket the ground during the winter and prevent the soil from blowing away in dust clouds. Then in the spring we plow down the cover crop, which rots in the soil and enriches it."



"THE VINES HAD BEEN TRIMMED SEVERELY"

Little Bob looked wonderingly down the long rows of grape vines. He had never seen anything like them before. There were strong posts at frequent intervals, to which two parallel wires were fastened, which were high above the ground and perhaps two feet apart. The odd thing to Little Bob was the appearance of the vines. They had evidently been trimmed severely. Each vine sent up a sturdy trunk, that ran straight up from the ground to the top wire, which was perhaps five feet high. At each wire the vines sent out strong arms to right and left. But these arms were quite short, for the plants were only eight feet apart, and all the side shoots had been trimmed back to mere little spurs.

"You look puzzled," smiled Mr. Breck. "Perhaps you are wondering why these vines are pruned and trained in this way, Little Bob."

"That's exactly right," laughed the lad. "All the grapes I ever saw had no end of vines, running all over high wooden arbors, and all grown together like fish nets, and held fast by little tendrils that get as hard as wire."

Mr. Breck laughed. "You can see plenty of those old-fashioned grape arbors right in this

region," he said. "That's the way folks all used to grow grapes before they knew any better. But growers who must earn their living through grape production know that they can't raise profitable crops that way."

"Why not?" asked Little Bob.

"Well, you yourself just named the reason. An untrimmed grape vine grows into a regular thicket. In consequence, the berries are small and poor, because the vine produces too many and they can't get enough sunshine and plant food."

Mr. Breck stooped and picked up a piece of grape vine that the pruners had missed in clearing away the prunings, and handed it to Little Bob.

"This long grape vine or shoot we call a cane. You notice that it has buds every six or eight inches throughout its entire length. Some sorts of grapes are so vigorous that in a single season they will put out a great number of canes, each of which may be as long as 15 feet. Think how many buds that would mean. Each of those buds might start another cane the next season, and so on, year after year, until your vine is indeed a thicket.

"Now, each of those new canes will produce two or three bunches of grapes. If you have twenty

canes, you might get forty or fifty bunches of grapes. If you have fifty canes, you might get a hundred or one hundred and fifty bunches. And if you have one hundred canes, you might get two hundred or three hundred bunches. You may think that desirable, but the trouble is that when you get too many grapes, the bunches are small and the berries little and poor in quality. So the first principle in grape culture is to restrict vine growth."

"I see," commented Little Bob. "That sounds sensible."

"It is. We cut the canes back, just as you see them pruned here, and we leave as many buds as it seems advisable. We trim back a weak vine pretty hard, whereas we leave far more buds on a strong vine. Grape growers have found that the average vine can produce from thirty to eighty first class bunches. So the pruners leave enough strong buds, on the sturdiest canes, to produce the desirable crop. A very weak vine will be shortened back so it cannot possibly produce more than thirty or forty bunches, while enough buds are left on a vigorous vine to yield eighty or even more bunches. It all depends upon the vine. So the pruner has to know his business and be able to judge accurately about the quality

of the vine itself."

Mr. Breck paused and smiled. "You see there is nothing mysterious about it, Little Bob. It's just common sense. For when you limit the number of bunches the plant can bear, then feed the vines well, cultivate them to insure ample water for them, give them plenty of sun by keeping the vines open, and spray them to kill bugs and diseases, the result is certain. You get nothing but handsome delicious bunches of highest grade berries."

"Of course," said Little Bob. "It could hardly be otherwise. But what did you mean when you spoke of cultivating the vines in order to water them?"

"I should have explained that, Little Bob. It's like this. There is always water in the soil, except perhaps in the desert. This water comes from the rainfall, which sinks into the earth. There it is held between the tiny particles of soil, just as moisture is held between two pieces of window glass. If you don't understand what I mean, you put two little pieces of old glass tight together and dip them in water. When you separate them, you'll find a film of water between. Well, there is a similar film of water between soil particles all through the ground.

So the thing to do is to keep this water from evaporating out of the soil. Then the little grape roots can run out everywhere and drink in this soil water."

"Well, gee whiz!" said Little Bob. "I never knew that. But how do you keep the water there?"

"Have you ever seen a kerosene oil lantern or lamp, Bobby?" asked the grape grower.

"Sure."

"How does the oil get up the wick so that it can burn and make a light?"

"Why, it draws up."

"Exactly, and soil water draws up to the surface. When the surface becomes caked, as it will after rains, that hard surface acts exactly like the lamp wick and draws up the moisture. But if we break up that crust and make the surface dry and powdery, that stops evaporation just as putting the top on a fruit jar stops evaporation of the liquid in the jar. So, after the spring rains have filled the earth with water, we keep the cultivators going, and that keeps the water in the soil, and the grape vines get it. Also a soft surface catches every drop of rain. A hard, caked soil is like a tin roof. It makes the water run away.

"But there's even more to it than that, Little

Bob. Without soil water plants can't get food, even if the ground is packed with it; for plant food is dissolved by the moisture and is sucked in by the roots in liquid form, just as you get the sugar in your tea or coffee. The tea dissolves the sugar, and when you drink the tea you get the sugar, too. That's the way it is with plants. So, no soil water, no food or drink for plants. Also, by cultivating, we turn the soil over and open it and that lets the air and the sunshine into the ground and that, too, is helpful to plants. So you see there is a lot more to cultivating than merely killing off weeds. Yet lots of unprogressive farmers still think that the only reason they cultivate crops is to kill weeds."

"Well, gee whiz! Gee whiz!" said Little Bob. "I had no idea that farming *could* be so interesting."

Presently they came to the end of the grape trellis, and here in a plot of sandy loam Little Bob saw row upon row of what looked like little twigs sticking up above ground two or three inches. The twigs in the rows were perfectly spaced at intervals of about six inches.

"What are they?" he asked in astonishment.

"That is my cutting bed," said Mr. Breck.

"And what are cuttings?"

Mr. Breck took the grape cane, which he still held in his hand, and rapidly cut it into pieces about a foot long. These he handed to Little Bob.

"You notice," he said, "that I cut this cane into pieces that have three buds each. If I were to plant these so that the top buds were just above the ground, and cultivate them all summer, the lower buds, underground, would send out roots, while the top buds, above ground, would grow stems and leaves. By fall I would have some nice new grape vines. That's what all those twigs in that cutting bed are—pieces of grape canes that will turn into new vines for future planting."

"Well, gee whiz!" said Little Bob. "Will all twigs grow like that?"

"No. Many sorts of plants can be grown from cuttings, but those with real tough bark do not do so readily. Some plants that we cannot propagate by cuttings we grow by layering; that is, we bend down a growing branch and bury it at a node or joint where there is a bud. It may strike root there, and it will of course send up tops from unburied buds. It is more likely to strike root if we cut the branch half way through between the buried bud and the mother plant."

“Why is that?” asked Little Bob.

“It just seems as though the branch knows its life is threatened, and that if it is severed completely from the mother plant it will die. Therefore it hurries to make roots of its own, so it can live if it is cut away entirely.”

Little Bob was too astonished for words, and Mr. Breck went on. “It is by cuttings and layerings that we propagate most of our nursery plants. Sometimes we resort to grafting, or budding, especially with fruit trees. In that case we cut the entire top from a small plant, perhaps split the stock, and insert into it little wedges of bud wood from the plant we wish to produce. We wax the cuts all over and shade the graft from the sun, and soon the graft grows fast to the stock and becomes part of it. Thus you can put a Baldwin apple top on a Delicious apple root, if you choose. The fruit produced will be Baldwin. That is the way fruits are kept true to type. If we raised them from seeds, each tree would be different from all other trees of the same variety, because seeds contain qualities from many generations of ancestors, and no one knows what qualities will come out in the new plant. But by grafting or budding we simply continue to grow the same old

tree on more and more new roots. Thus, all the Baldwin apples in the world have come down from the original Baldwin tree."

"Gee whiz!" cried Little Bob, astounded. "Do you ever use grafting in grape growing?"

"Sometimes. There are some varieties of grapes that are very greatly harmed by a root disease called phylloxera. In fact, it almost certainly will kill those varieties. On the other hand, there are some varieties that are very resistant to phylloxera. The disease can hardly hurt them. So we put the tender vines on the resistant roots by grafting, and thus we get ahead of the disease.

"We also graft grapes to get fruit quickly. By putting a new vine on an old root we may get grapes quicker than we could by raising a vine from a cutting or by layering. Thus we can test out new varieties quickly."

"*New varieties?* How do you get them?"

"By cross pollination. That is, we take the pollen from one plant and put it on the bloom of another plant by hand, and we make sure that no other pollen gets on that bloom. From the seeds of the resulting grapes we grow vines and see what we get. It is a slow process. Grape raisers cannot afford the time

for it. Fortunately they do not need to. Our experiment stations do that. There is a wonderful experiment station in Geneva, N. Y., where they specialize in grape breeding. They have more than twenty-five hundred varieties and new crosses, and they are making more all the time. Every once in a while they produce a grape that is far better than any grape ever known before. Then we growers secure some of the wood and use it for cuttings, and so grow some of these fine new grapes for our own vineyards."

"I never dreamed of anything like that," exclaimed Little Bob. "Why, you could do anything, absolutely anything, with plants if you worked at it long enough. Make them big or little, sweet or sour, early or late, and so on—couldn't you?"

"Exactly. That's what plant breeders are doing with all our plants—making them over again, and improving them in every way. You'll see an entirely new plant world before you die, young man."

"Well, gee whiz! Gee whiz!" said Little Bob, almost dumb with astonishment. "And I used to think farming was such stupid work."

"That was because you didn't know anything about it," smiled Mr. Breck.

Chapter VIII

A Picnic at Lake Erie

By this time, Little Bob was beginning to realize that there was a tremendous number of things in the world that he didn't know anything about; he was also beginning to see that there is interest in everything, and the more he knew about the world, the more delightful life would be. The thing he wanted to know more about just now was that great big inland sea, so near at hand, which he had glimpsed from a distance as they drove toward Northeast, and quite naturally he said so.

Mrs. Breck sympathized with him fully. She was much younger than Mrs. Carroll, and more lively and full of fun. Mrs. Carroll had seemed to Little Bob like a dear, loving mother. Mrs. Breck seemed to him like a jolly, kindly big sister. She seemed to get his viewpoint exactly.

"Of course Little Bob ought to see the Lake,"

she said. "Now he has come hundreds of miles from home, and he is within a ten-minute ride of Orchard Beach, a lovely place on the lake shore for a picnic. So we're going there and have a picnic. This day was just made for it. It's as warm as summer, and the finest day we've had all spring."

When she saw her husband begin to look doubtful, she went on: "You needn't say no, Henry, for it won't do any good. You stick to your grapes and fruit trees too steadily. You need a vacation. So we are going to pack a lunch and spend part of the day at Orchard Beach. You can just let the men do the work today. What do you hire them for, anyway?"

Mr. Breck saw that it would do no good to object, and besides, he really wanted to go. So he made no protest, and got out his big car and prepared for the short drive to the Lake shore. In the meantime, Mrs. Breck packed a delicious lunch in a great picnic basket.

The drive to the shore was brief but pleasant. The Breck homestead was within five miles of the beach, and the intervening land was covered almost completely with beautiful orchards and vineyards. Look where he would, Little Bob saw the same

scenes—endless rows of fruit trees and grape vines, numberless little columns of smoke where farmers were burning prunings or rubbish, plows and harrows and cultivators everywhere on the move, occasional fields being seeded as powerful teams dragged great seed drills across the smoothly cultivated ground, and everywhere a pleasing picture of men busy in interesting outdoor tasks.

But the thing that made Little Bob fairly catch his breath was when the Breck car came out to the waterfront, and rolled almost to the very edge of the waves themselves, as they washed gently up on the hard-packed sands. Never had he seen anything like the view before him. In rapt astonishment he stood on the shore, with the little wavelets almost wetting his shoes, and stared in amazement.

On either hand the sandy beach stretched away endlessly. Along its entire length little waves were constantly washing up, shooting far up on the sands with a little hissing sound, then pausing for a single instant, and slipping back into the great inland sea. On every wave the sun flashed and sparkled brilliantly, shooting gleaming reflections into the eyes of every onlooker.

When he looked out toward the great deeps, he

saw the breaking surf, though the day was fairly calm and the waves were low, and beyond the surf he saw endless leagues of smoothly waving water. No matter where he looked he saw only water, water, water. In the distance it looked as smooth as a polished mirror, although Little Bob knew it must be heaving gently, just as the water immediately before him was surging up and down.

Far out from shore—so far that they seemed to be hardly larger than toys—he saw vessels moving up and down the lake, some heading east, some west. Mostly they were great, barge-like steamers, though on occasion he saw a higher vessel that looked in the distance like the many-decked passenger steamers he had seen in pictures. A few smaller sailboats tipped and tossed closer at hand, in the shallower waters near shore.

“Little Bob, do you know what those ships are?” asked Mrs. Breck.

“I suppose they are steamers,” said her little guest.

“Yes, they are. And they are most interesting steamers, for some of them probably came from Europe, and some from New York City, and others from goodness knows where,—all laden heavily with

freight."

"From Europe!" cried Little Bob. "How in the world did they get way up here, if they came from Europe?"

"Well, I suppose you have studied geography enough to know that the mighty St. Lawrence River is the outlet of these Great Lakes. The waters that wash up on the sands at your feet will flow out to the Atlantic Ocean through the St. Lawrence. It is big enough to float all kinds of steamers. But there are some rapids in its course, near Montreal, where the stream rushes down hill, and of course no ship could come *up* those rapids, though big steamers can go down them. So there is a canal that carries ships around the rapids, with locks in it to lift them up to the higher level above the rapids. Thus a ship can cross the ocean from London and come up the St. Lawrence, pass by the Lachine Rapids, through the canal, and so get into Lake Ontario. After it passes through Lake Ontario it can get up into Lake Erie here by passing through the Welland Canal that takes it around Niagara Falls. It would be pretty difficult for a ship to climb up Niagara Falls, you know."

Little Bob laughed in sympathy with his jolly

hostess, at this bit of fun, and she went on: "So these ships can keep going right on up the chain of lakes, to Cleveland, Detroit, Chicago, or any other of the great cities along them, until finally a ship could reach the farther end of Lake Superior—more than a thousand miles from the ocean.

"It is this cheap transportation that has helped so much to build up great inland cities, like those I just mentioned. They can get raw materials from all parts of the world cheaply—for water transportation is the cheapest of all transportation—and ship out their finished products to all parts of the world cheaply. That means a tremendous lot to American manufacturers."

"Gee!" said Little Bob. "I wish I was on one of those steamers."

When he had gazed at the scene as long as he wished to—and that was a very, very long time, for it fascinated him—he wandered up and down the beach, playing in the sand, picking up pretty pebbles, gathering odd and lovely shells, and drinking deep of all the joys of a beach outing. Most of the time Mrs. Breck walked with him, while the two men sat on the sands, discussing farming.

After a time Mrs. Breck said: "Please don't

go too far away, Little Bob. It's getting toward lunch time and I must get things ready. We don't want to have to hunt for you when we're ready to eat."

She turned back toward the car and got out her great lunch basket. Because it was so early in the year, there was not a soul on the beach except the Breck party. So she could choose any place she liked for their meal.

Close beside the lapping waves grew a lovely tree. Its top was bent over by the winds that blew upon it endlessly, so that it was more like an umbrella than an upstanding tree. But it made a fine shade, and under this Mrs. Breck decided to spread the feast. Gathering some twigs, she made a brisk little fire between two flat stones, to warm some meat and potatoes and to make coffee. While this was heating, she spread a great tablecloth on the sands, anchored it with stones and dishes, and set out endless plates and cups and saucers and bottles and jars and other sorts of dishes. It was astonishing how much she got out of her great lunch basket. When it was all spread out, and she had rolled up some old beach logs for seats, the very sight of it would have made your mouth water. By this time

the coffee was boiling, so Mrs. Breck put it aside to settle. Then with a last look at the feast, to make sure she had forgotten nothing, she cupped her hands to her mouth and gave a loud "Halloo! Lunch



"... UNDER A TREE BENT LIKE AN UMBRELLA"

is ready!" And you should have seen how those men, big and little, came hustling in response. It made Mrs. Breck fairly laugh.

"Well," she chuckled, as they all arrived at once, "there is certainly one call in this world that no man

ever fails to hear. Now let's fall to, while things are good and warm."

When every one had eaten his fill of ordinary food, she reached into her lunch basket and drew out a little box.

Little Bob's eyes opened wide when he saw the contents. "Grapes!" he cried. "In April!"

"Exactly," said Mrs. Breck, while her husband smiled with evident pleasure.

"Wherever did you get them at this time of year?" demanded Uncle Bob.

"Raised them," said Mr. Breck, quietly.

"Oh!" replied Uncle Bob. "They've been in cold storage."

"That's the interesting thing about those grapes. They have not been near a cold storage plant. They've been in a basket in our cellar—just as you probably keep potatoes or apples in your cellar."

"I don't quite understand," said Uncle Bob. "This is April, and you say you kept these grapes in your cellar in a basket for six months? I never heard of anything like it. How did you do it?"

"The trick isn't in the method of storage," said Mr. Breck. "It is in the grapes themselves. The berries in your hands are something new in the his-

tory of the world. They won't shell off the bunch, and all you have to do to keep them is to make sure they're good and dry, so they won't mould, and then pack them in a basket and put them in an ordinary cool cellar. They are a new variety produced at the Geneva Experiment Station. Just an example of what I was telling you about fruit men making over the world's fruits and putting new qualities into them. You'll see a lot more marvels like this one in your life time, Little Bob."

Chapter IX

Through the Wilds of Northern Pennsylvania

Little Bob was going to see some more marvels very soon, for Uncle Bob said that he would have to be pushing on the next morning, and although every minute of their stay with the Brecks was delightful, on they went when morning came. Little Bob was almost in the dumps. He wanted to see the great lake again. He thought he should never see anything else so wonderful.

But by the time their car had reached the Roosevelt Highway, the road that was named for the great Theodore Roosevelt and that passes from one end of Pennsylvania to another along the northern border, he quite forgot about Lake Erie; for here were scenes every whit as fascinating.

They passed through several small cities, but it was not the towns that interested Little Bob. It was the marvelously rough and rugged country. They

had soon passed out of the good farming district, and were now in a region where the soil was poor, where the country was rugged, and where the farms that were still cultivated stood mostly on edge, so hilly was the land and so steep the hills. But it was strikingly picturesque and beautiful.

It all appealed to Little Bob's imagination, for in his mind he readily went back to the days when this rugged country was the hunting ground of the red men, and in his mind's eye he could see campfires and wigwams and bark canoes everywhere; and he could also see white hunters and trappers stealing through these hilly fastnesses. The very look of the country told him that this must have been a land of adventure.

As they passed ever eastward, farms became fewer and fewer, and woodlots grew in size and number, until presently the travelers were in real forest, though it was second-growth timber. Now the woods seemed as boundless as Lake Erie had appeared, and farms and houses were as rare as islands had been in that great inland sea. Little Bob felt that sense of awe and majesty that one must ever feel in the presence of such mighty works of God.

Uncle Bob explained to his nephew that they were now on that high divide which separates the waters that flow to east and west, as the ridge of a roof separates the rains that run down the back side of that roof from those that flow down the front. For here, close at hand on the western side of this divide, was the source of the Allegheny River, that they had seen in Pittsburgh on its way to the Mississippi and the Gulf of Mexico. But here the mighty Allegheny was only a darkling little forest stream, like a swollen brook. Just a little way to the east, other streams were forming that would run into the great Susquehanna and drain into the Chesapeake Bay and so into the Atlantic Ocean. A little distance to the north of them arose the River Genesee that would drain straight north into Lake Ontario, just beyond Rochester, and so flow down the St. Lawrence to the Atlantic. Even Little Bob could see that they must be on the very top of the world—at least on the top of this part of it—with the waters flowing away in every direction. And that gave him a lot to think about.

Before he knew it, they had run through this second-growth forest and were come again to hilly farms; these looked so different from the farms in



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. . . A WILD AND PRIMITIVE BEAUTY

his home country that instantly they attracted his attention. For the travelers were now in that vast dairy belt that edges the northern border of Pennsylvania for miles and miles.

The barns were not like those in his home region, and beside every barn towered one or more huge silos. The dwellings, too, were different. Little Bob did not understand why until his uncle told him that they were now in a region originally settled by people from New England, whereas he lived in a region largely settled by Pennsylvania Germans. These original white owners had stamped their districts with their own particular types of architecture. That thought made Little Bob open his eyes very wide indeed. He knew that persons were like their ancestors, but he had never thought that houses and barns might also be built like those that had preceded them.

So he was all interest when Uncle Bob suddenly left the cement highway and turned north on an earth road that wound among the hills, up a steep grade, to a farmhouse that occupied a commanding location far up a vast, pastured hillside—a farming area grazed smooth and velvety, like those sheep-cropped hills of Mr. Carroll's. This home, too,

was lovely, although it was different in architecture from either Mr. Carroll's or Mr. Breck's. It was set all about with large and beautiful sugar maple trees. It was well painted, as were all the barns and sheds and other outbuildings; the fences were neatly kept and in good repair.

The thing that made Little Bob fairly catch his breath was the grand view of the lower country they had just left. Such a vast expanse of broken land, rolling pastures, rugged hillsides, with stands of trees everywhere outlined against the sky, he had never seen. It seemed as endless as the great lake—and just as lovely and impressive.

Little Bob had wondered if anybody else in the world could be as nice as the Carrolls and the Brecks had been, and yet he found his new hosts—Mr. and Mrs. Leonard Carlin—just as delightful, though in a different way. There was a lovely big Collie named Hector, that greeted them with quite as cordial a welcome as did his owners. He came up to Little Bob, wagging his tail vigorously and wanting to be patted, and finally leaped up affectionately on the lad. The animal was fully as tall as Little Bob himself. There were two boys in the household, but they were much older than Little Bob; yet every

member of the household was so cordial that Little Bob quickly felt at home.

For some time they chatted before a cheerful fire in the open grate. After a delightful lunch, their host insisted that he must show them his cattle and his plant, for as both he and Uncle Bob were dairymen they were keen to compare notes and discuss the problems of their vocation.

The barn would probably have impressed Little Bob tremendously if he hadn't already been so familiar with his Uncle's barn. Certainly it would have impressed most persons. It was incredibly large, for Mr. Carlin had nearly fifty cattle in his herd. The hay mows were huge, and would evidently contain oceans of hay, and the silos were also enormous. But most impressive of all were the stalls, where the cattle were milked. The huge room was whitewashed and spotless. Each animal had ample stall room, with stanchions to keep it in place, a private bowl always full of pure, fresh water, and a clean manger. The electric milking apparatus was neatly stowed away. There were great compartments or bins for the chop and oats and other feeds. Indeed, the place was as clean and well arranged and orderly as the finest kitchen. But as this was

an old story to Little Bob he paid very little attention to it.

The thing he wanted to see was the cattle, for he was fond of animals of any sort. He waited patiently while the two men discussed various feeds and rations and different sorts of forage, and finally found an opportunity to insert a question in the conversation.

"What sort of cattle do you keep, Mr. Carlin?" he asked.

Evidently Mr. Carlin must have had Yankee blood in him, for he replied with another question: "Are you interested in different breeds of cattle?"

"Very much," said Little Bob, "although I don't know anything about them. I've merely seen pictures of them."

"Well, I am glad you came to visit us, for it happens that I have several breeds here now. I am doing a bit of experimenting—trying to find out whether other sorts would make me more money than the Holsteins I had been raising for years. They are the black and white cattle you so commonly see in dairy regions."

"I thought they were the biggest milkers," said Little Bob. "I should think they'd pay best to

handle.”

“You aren’t the only person who thinks that. I have thought so myself, for a long time. But sometimes I doubt it. So I got some other animals to test out. They may not give quite as much milk, and yet they may pay better. That’s what I want to learn about.”

“I should think that the cow that gave the most milk would pay best,” said Little Bob.

“That sounds reasonable. But you know it isn’t the *quantity* of milk alone that settles the matter. You also have to know what’s in the milk and what it costs you to produce it.”

“I don’t understand,” said Little Bob, “when you speak of ‘what’s in the milk.’ Isn’t milk milk?”

“That’s what a lot of unprogressive farmers still think,” laughed Mr. Carlin. “But nothing could be more false. You see, the most valuable part of the milk is the butter fat—the fat from which butter is churned. Some cows give little, some give much. Holsteins give about the least of all cows. The creameries pay us on the basis of the butter fat content of our milk. We get a certain rate a hundred pounds for milk that contains three and five-tenths per cent butter fat. For milk that is richer we get

a premium. So a cow that gives less milk might be more profitable than a cow that gives more milk, providing the first cow's milk is rich in butter fat."

"I never knew that," said Little Bob. "What cows give the most butter fat?"

"Generally speaking, such animals as Jerseys and Guernseys."

"Why do they give more than Holsteins?" demanded Little Bob.

"That's a hard question to answer. I don't really know. But these rich milk cows have been brought up differently from the Holsteins. Whether that affects the matter, I don't know."

"How have they been brought up differently?" demanded Little Bob.

"Have you ever heard of Arabian horses, and how those very sensitive animals have for hundreds of years been the pets of their owners, and almost lived in their tents with them, like dogs? Well, it is much the same with these rich milkers. We call them Channel Island cattle. They came from the islands in the English Channel. There for centuries they were so tenderly cared for that they are sensitive, like Arabian mares, and give a prodigious amount of butter fat, but not so much milk. They

are relatively small, too. The Holsteins came from Holland. They are very large animals. They are not nearly so sensitive and will stand an amount of neglect and abuse that would make Channel Island cattle almost worthless. They take an enormous lot of feed, too. But they *do* give the milk. So you see there are points on either side to consider. The problem before dairymen now is to produce cattle that will give milk that is both plentiful and rich in butter fat. So I suspect that when we have produced the ideal milker we shall have some sort of an animal that may be different in many ways from any standard breed we have today."

"You talk about cattle just as Mr. Breck talked about grapes and fruits," said Little Bob. "He said they are being changed. But how can you change cows?"

The dairyman laughed. "In various ways," he said. "First of all, we can teach the cattle we already have better habits. Then we can develop better animals through the years."

"How can you teach an animal better habits?" demanded Little Bob, thoroughly puzzled.

"Do you know what a runt is?" asked the dairyman.

"Sure. It's an animal that didn't grow right."

"Correct. You wouldn't expect a runt cow to give much milk, would you? But you might expect that a well built, large framed, sturdy animal might give lots of milk."

"Of course."

"Well, one of the first things we try to do is to teach our calves to become big eaters. That makes them grow fast and big. It develops their stomachs, just as pounding with a hammer develops a blacksmith's right arm. We try to keep them toned up and full of pep so they are always hungry. Thus we breed calves that are large eaters. When they are old enough to produce milk, they produce more milk because they eat so much. A cow, you know, is merely a machine for turning grass and hay and corn and fodder into milk. So the more raw material you can get it to handle, the more milk it will make."

"Gee whiz!" said Little Bob. "I never thought of that. What else do you do?"

"Well, we weigh the milk at every milking, so that we know to an ounce how much milk every cow gives each year. Lots of poor farmers laugh at us for doing that, but it is the only way by which a

farmer can know which are his best milkers."

"Of course," said Bobby. "That's perfectly evident."

"We also have the creamery test the butter fat content in each cow's milk every month, so that we know how much milk a cow gives and how much of that milk is valuable butter fat and how much is water. So we know just what each cow produces every year. It is a simple matter of mathematics. If a cow gives me six thousand pounds of milk a year, and that milk averages three per cent fat, that cow produces one hundred and eighty pounds of butter fat. If another cow gives me five thousand pounds of milk that averages five per cent butter fat, that cow produces two hundred and fifty pounds of butter fat. Thus, the second cow may be far more profitable to me, although she gives less milk."

"Gee whiz!" cried Little Bob. "You don't have cows that will give you five thousand pounds of milk a year, do you?"

Mr. Carlin smiled. "I wouldn't keep a cow on this farm that gave me so little," he said. "When I first started, years ago, I had cows that gave me less than four thousand pounds, but now I have some animals that give me twelve thousand or thirteen

thousand pounds a year, and my entire Holstein herd averages about nine thousand pounds. You see we have built them up during the years."

"How?" cried Little Bob. "That's wonderful!"

"Well, I have already told you how we try to make them eat a lot, and how we check on the milk and fat. We get rid of all cows that are not profitable, just as soon as we are sure they are not. Then we breed from the best. For parents we take the best milkers and we use the best herd bull we can buy, and so we get better and better calves. You know how it is in horse racing—every year or two some horse comes along that breaks the record, and in a year or two another horse comes along and breaks his record, and so on. Well, it is so with our cows. When I got my first ten thousand pound cow, I thought I had reached the top, and yet I now have three that have exceeded thirteen thousand pounds. Now I am trying for a fourteen thousand pound cow. You see, I take the best calves of the best milkers and use the best herd bull, and little by little we increase milk output. But we don't seem to add much to the butter fat content. So that is why I am experimenting with a few Jerseys and Guernseys. I also have two or three Brown Swiss cows

and some Ayrshires. My Holsteins are on a very profitable basis. My herd gives me good profits. But if I could find out how to improve it further, it would yield still larger profit. So you see I can afford to experiment a little on the side with these other sorts."

"I never heard of Ayrshires," said Little Bob, "until I was at the Farm Show. What big horns they have. Where do they come from?"

"Scotland, Little Bob, from the County or Shire of Ayr. They are a comparatively new race. Farmers have been raising Jerseys and Holsteins for centuries, just as the Arabs raised horses, and they have bred certain qualities into them simply by selection. The Dutch evidently picked out the cows that gave lots of milk. The Channel Island folks preserved those that gave lots of cream. And so, in the course of centuries, it became a fixed characteristic for Holsteins to give lots of watery milk and for Jerseys to give rich, creamy milk, but not so much of it. Evidently the Scotchmen of Ayr were not satisfied with the cows they had, so they set out and developed a sort of their own. I thought perhaps they might do well here, up in these high hills, because they come from the Scotch highlands. You

know, one sort of cow may do well in one location and another in a different location."

"That's just what Mr. Carroll said about sheep."

"It's true of all living things. Part of an intelligent cattle raiser's job is to find the sort that does best under his particular conditions, and then breed up that sort of stock to the highest point he can. It is astonishing what men have been able to do in the way of changing the nature of plants and animals."

"It's wonderful," said Little Bob. "Where are your cattle? May we see them?"

"Just what I was going to suggest. They are in the pasture. We will go up there. On the way back I want to show you my prize Holstein bull. He's becoming very nasty in disposition, so we have had to chain him in a separate shed. That doesn't make him act any better, either. But we hardly dare keep him in the cow barn any longer. Now let's go up to the pasture."

They toiled up the steep road, and on over a well-grazed hilltop and passed into a vast grazing land, which was dotted with huge boulders. In a far corner was a large grove or clump of sugar maple trees near which the great cattle herd was

grazing.

The view from this elevated pasture was remarkable, for it enabled one to see over a far wider scope of territory than could be glimpsed farther down the slope, at the house level. The three investigators turned and stood silent, impressed beyond words by the marvelous beauty of the scene.

For many minutes they stood thus, facing the brisk breeze, speaking not a word, but examining every feature of the amazing landscape. Then Little Bob turned to speak to their host. As he did so, he saw something that almost froze the words in his throat. A huge black and white bull was charging across the pasture, coming straight at them with lowered head and swinging horns.

"Look!" was all Little Bob could say, as he pointed at the charging beast, his eyes bulging with terror.

Chapter X

At Grips with an Angry Bull

A terrible sight the oncoming animal was, too. Outlined against the sky, he loomed huge and ferocious. His bulk seemed enormous, and truly he was a mammoth creature. His shoulders were broad and powerful. His neck and head were one terrifying bulk of bone and muscle. His horns were sharp and cruel, and the fearful gleam of anger that shone in his eyes would have made the stoutest heart quail.

Of all the terrible things that Little Bob had ever looked upon, this was the worst. No sound he had ever heard had seemed so frightful as the hoarse bellow of this advancing brute. It was a blood curdling sound that fairly terrified one. So startled and alarmed was Little Bob that he seemed powerless to move. His feet felt as though rooted in the ground. He could only stand and stare in helpless fright. As the creature came nearer,

Little Bob noticed a brass ring in its nose and a link or two of polished chain dangling below it. Evidently the brute had broken his fastenings.

Fortunately, the animal was still some distance away when Little Bob sighted it. The hillside breeze, blowing from the explorers toward the cattle, had prevented their hearing the creature's footfalls. For he was coming heavily on, his feet sliding on the sloping earth, the pebbles rolling and flying under his hoofs.

Mr. Carlin took in the entire situation at a glance. Then he cast a lightning look about, seeking for a weapon or some means of safety. He saw neither. There they were, alone with this terrible beast, and well inside the pasture, far from a fence. They could not hope to reach the fence before the charging brute would overtake them.

"Get out of the field quick," said Mr. Carlin, "but don't run. I think I can manage him."

Uncle Bob knew instantly that the only hope of safety for any of them was for him and Little Bob to leave the field. They were strangers and had probably excited the brute. The animal might possibly be cowed by his master. It was the only hope.

Instantly Uncle Bob grasped his nephew by the

hand and started to back down hill toward the fence, still facing the bull. As he went, he looked swiftly to right and left, and discovering a great stone nearby, stooped and picked it up. A moment later he found another, which he gave to Little Bob. "Hold that for me," he said. Then he continued to back down the field.

Meantime, the maddened brute came on. Mr. Carlin stood as still as a statue, facing the beast with unwavering eye. His attitude seemed to puzzle the creature. The animal came on more slowly. Mr. Carlin stood immovable. The beast was within a hundred feet and still his owner moved never a muscle. Unquestionably the brute recognized him. Perhaps the animal remembered other encounters with the man. At any rate, his steps grew slower and slower. Soon he was within seventy-five feet of his owner.

Suddenly Mr. Carlin flung his arms wide and yelled fiercely at the top of his voice. His great, deep bass boomed out like a fog horn. It seemed to fill the entire pasture. It was almost as startling as the bull's bellow had been, for Mr. Carlin had put into his cry the most ferocious tone he could command. A second after he had shouted, the sound

came echoing back from the rocky hill, producing a weird and alarming effect.

The bull came to a complete stop. He began to paw the earth savagely, shaking his huge head threateningly from side to side, and again bellowing frightfully. He was a sight to freeze the blood of the bravest.

The farm owner never moved. Again he stood perfectly motionless, staring at the bull with all the fierceness he could command, trying to cow the creature. But the angry brute cared little for looks. On he came again, though this time he advanced slowly, still pawing the ground, still angrily tossing his terrible horns, and again giving vent to a horrible bellow. But Mr. Carlin retreated not an inch. Slowly the bull came on, a step at a time, pausing again and again to paw the earth, and filling the pasture with his frightful roar.

Suddenly the farm owner repeated his gesture once more flinging his arms wide, and shouting at the top of his voice; and this time he took a threatening step or two toward the bull.

Again the animal stopped dead. But he pawed the earth even more angrily than before, and bellowed horribly. He seemed to regard this latest

move of his owner as a challenge to battle. Roaring more terribly than ever, swinging his head more fearfully, he came on again, his eyes fairly red with hatred, his tail switching his flanks with a horrible swishing sound.

The crisis had come and Mr. Carlin realized it. Well he knew that nothing he could do would now stop the beast. He felt sure that by this time his visitors must have reached a safe haven. He must save his own life. How he was to do it he did not know, for the bull was now frightfully close to him, and he had no weapon more effective than a little pocket knife. It wasn't even worth getting out of his pocket. He could hardly more than scratch the tough hide of the bull with it, and while he was attempting to do that, the creature would gore him to death.

He must get away. Yet he dared not run. Even less did he dare turn his back. If he did that, the beast would knock him down in a second and mangle him with those terrible horns. Whatever happened, he must continue to face the infuriated animal. Yet move he must.

Slowly he took a step backward, still holding his gaze fixed on the oncoming bull, still trying to

cow the beast by the power of his gaze. He had cowed angry dogs that way. But it did not work with the bull. The animal continued to advance. Yet it did not break into a charge. It came on a step at a time, and as it stepped, Mr. Carlin also took a step backward.

So they continued for some rods, the blustering beast still partly awed by the intensity of his owner's gaze, yet ever coming on, a step at a time. Slowly but surely he was coming closer.

In desperation Mr. Carlin took his gaze from the bull in one swift look for a stone, a club, a weapon of some sort. It was a fatal move. For the instant his powerful glance shifted, the bull launched into a charge. Like a thunderbolt he came dashing down the steep slope. His owner kept his nerve and stood motionless, every muscle taut, awaiting the critical instant. Then, as the bull came lunging on, his great horns lowered to toss his victim, Mr. Carlin sprang aside like a flash and at top speed ran for a big boulder that stood some rods away.

The bull's fierce charge sent him hurtling on down the slope. But setting his four feet stiffly, he stopped with amazing quickness, turned and dashed ferociously after the fleeing farmer, roaring loudly.

The great speed with which the bulky beast thundered along was astonishing. With every leap he gained upon the fugitive. The boulder was still rods distant. The bull was gaining fast. Mr. Carlin took



"A GREAT YELLOW BODY FLASHED ACROSS THE PASTURE"

one quick look over his shoulder, saw how fast the brute was overtaking him, and put forth every ounce of energy he possessed to reach the rock ahead of the bull.

Now a new fear smote the fleeing farm

owner. As he looked toward the rocky refuge, he noted with dismay that although it was high and broad enough to afford a perfect refuge if he could reach the top of it, the sides of the great stone were so smooth he could hardly get a toe hold for climbing; they were almost as perpendicular as the sides of a house. Even if he reached the rock, he now realized that he could never ascend it before the bull pinned him down with those frightful horns. But he raced on, planning to dart around the rock and so dodge the infuriated bull.

It seemed doubtful if he would ever reach it. With every leap the bull drew nearer. He was now within a few feet. A dozen more leaps and he would send his owner flying with those terrible horns. All this Mr. Carlin realized. He could hear the animal's footfalls closer and closer behind him. He made a last desperate dash for the rock, tried vainly to scale it, then gathered himself for a leap to one side. At that instant a great yellow body came flashing across the pasture and hurled itself straight at the head of the charging brute. It was Hector. His aim was true. In another second his teeth were deeply imbedded in the neck of the bull. As the startled and infuriated animal strove desperately

to crush and kill the dog, farm hands rushed up with pitchforks and clubs and drove the bull back to the pen from which it had broken away.

Chapter XI

To the Great Island of the Indians

Mr. Carlin quickly rejoined his two friends, who had succeeded in reaching the fence just as Hector came flashing into the field. Almost before they had crawled through the wires, Hector had the bull by the throat. Now the three friends slowly made their way back to the house, the dog limping at the heels of his master, who paused at every step to pat the faithful animal's head.

"A close shave," was Mr. Carlin's only comment, "I'd like to know how that bull got loose."

It was the first time Little Bob had ever been face to face with death. His terrible fear had been succeeded by a feeling of weakness so intense that he could hardly stand. Now his legs wobbled and he felt sick at his stomach. It was merely the reaction from danger. All three of them doubtless had somewhat the same feeling, though the men were more accustomed to face danger.

The incident had taught Little Bob a lot. But the thing that impressed him most was the brave way in which Mr. Carlin had faced the bull, and undoubtedly saved their lives at tremendous risk to his own. He was further impressed when they reached the house once more, and their host ushered them in and set about to entertain them as though nothing unusual had occurred. He did not even mention the occurrence to his wife. Little Bob could see, however, that he was not quite as composed as usual. He did not wonder, for he himself was still very nervous.

Presently Mr. Carlin said, "Now that we've seen the farm, I'd like to show you our country hereabout. Will you join me in a motor ride?"

So Mr. and Mrs. Carlin, the two boys, and Little Bob and his uncle got into the farmer's roomy car and went for a long, easy ride through this beautiful forested hilly country. Little Bob noticed that Mrs. Carlin also slipped a huge lunch basket into the car. So he knew that they were going to have another picnic—this time in the woods.

It was these same woods that so impressed him on their journey toward home the next morning, for they were now in one of the wildest parts of

Pennsylvania, and Uncle Bob had determined to give his nephew a good look at this feature of the great Commonwealth. So when they had made their proper adieus to their hosts, Uncle Bob drove back to the Roosevelt Highway and backtracked a little distance to a town called Galeton; here Uncle Bob turned south and plunged into the greatest stretch of forest that Little Bob had ever seen. Although the trees were mostly young and immature, nevertheless this was genuine forest, and an impressive forest at that.

For now they drove, mile after mile, through solid stands of timber or great reaches of younger forest growth, with hardly a house or clearing of any sort. Sometimes there appeared some tattered and isolated woodland dwelling that had arisen in the more prosperous lumbering days, when all this region swarmed with lumber camps and logging activities; or perhaps they came upon some sportsmen's camp in this great hunters' paradise.

These vast areas of uninhabited forest swarmed with game. As they drove along they sometimes sighted deer by the roadside; groundhogs shuffled across the way before their car, and squirrels darted nimbly up tree trunks at their approach, and fled

to safety in the tree tops. Here and there a ruffed grouse whirred up with thunderous flight, or a less timid ring neck pheasant stole quietly into the wayside brush at their approach.

With every mile the way grew wilder. The hills rose higher. The valley deepened. The little stream in the bottom gathered volume. As the road turned and twisted round the shoulders of endless hills, they came, now and again, to some lofty viewpoint whence they caught distant vistas that thrilled them with their beauty, impressed them with their ruggedness and awed them with their air of wild and brooding desolation. Here, if anywhere, could one catch the spirit of the forest primeval. Little Bob felt its spell, even though he hardly knew what it was that gave him the curious feeling in his heart.

After a time the road forked, then there was a clearing, and a forest home came into view.

"Little Bob," said his uncle, "we are nearing one of the most interesting spots in all America. Look at the wilderness. Doesn't it remind you of pictures you have seen of Norway? It should, for here that great and famous Norwegian violinist, Ole Bull, bought, or thought he bought, a vast area of this forest land. Here he brought eight hundred

of his fellow countrymen to found a Norwegian colony in this New World. Unfortunately, it ended in disaster, for he had been cheated in his purchase. He lost the land and his colonists lost their homes. But memories of that great adventure still tinge this whole countryside. This little bit of farm land, with its lone house, is marked on your map as Oleona—in honor of that great Norwegian. Soon we shall see the very site where he settled his colonists, and the remains, high on a cliff overlooking their little valley, of the great castle he started to build for himself on the shoulder of the mountain.”

Alas for Little Bob's dreams! A CCC camp now occupied the valley, and rows of buildings stood where once, no doubt, some of those humble forest homes had stood. But Little Bob was glad enough to climb the cliff and see the old stone castle foundations. He also noted, to his surprise, that here flew two flags—his own bright stars and stripes and the banner of old Norway. Down in the bottom was a delightful State forest park, with covered pavilions for diners, and stone fireplaces for cooking, and graveled walks that led through the beech forest. Altogether it was such a snug and charming spot that Little Bob wished the Carlins could be with



"... WHERE FLOWED THE CLEAR AND LOVELY SUSQUEHANNA"

them and that they could have another picnic.

On they went, through land that became ever wilder, with hills ever higher, meeting not a soul on the narrow forest road, and passing, at long intervals, a solitary house or some crossroads store and filling station. Truly Little Bob had never seen such woods. He was glad his uncle had brought him this way, for it made more vivid in his mind many tales he had read of life in the forest. He knew what a forest was, now.

Finally they emerged from their narrow valley into a broader one in which flowed a clear and lovely river. Uncle Bob told him this was the Susquehanna, and the town at hand was Renovo. This proved to be a railroad town, with great repair shops and many tracks, and houses climbing straight up the sloping hills that walled the narrow river valley. Later they passed through tiny hamlets and glimpsed isolated farms, as they rode beside the ever-deepening stream through the ever-widening valley. Presently a lovely town lay before them, which Uncle Bob said was Lock Haven, a community so named because it was indeed a haven in the brave old days, when the Pennsylvania canal was an up-to-date means of travel. The speed of those same

canal boats was three miles an hour, with a top speed of four for packet boats—the express ships of the canal.

Through the town they drove rapidly, along a lovely waterfront street, and presently crossed a high bridge over the Susquehanna.

“I thought the river was bigger than this,” said Little Bob.

His uncle laughed. “It is. The stream you have just crossed is only half of the Susquehanna, for you are now on a big island. In fact, they call it The Great Island. It is a most interesting place, for it was once the site of a fine Indian village, and is now the setting for one of the world’s most interesting agricultural experiments—an effort to alter the nature of the tobacco plant. That seems appropriate, doesn’t it? For it was the Indians who gave the white men their first tobacco.”

“What do you mean, Uncle Bob, when you say they are trying to change the nature of the tobacco plant? Are they breeding it up somehow, as Mr. Carlin bred up his cattle?”

“Yes, they are breeding it two ways—both up and down.”

“I don’t quite understand, Uncle Bob.”

"Naturally," smiled Mr. Baxter, "because this experiment is something most unusual. You see, the element in tobacco that produces an effect upon the smoker is nicotine. It happens that nicotine is also the thing that is best for killing plant lice and some other forms of insects that damage fruits and plants. Uncle Sam is trying to lessen the amount of nicotine in the tobacco used by smokers, so that their cigars will be milder and less irritating to the throat; and at the same time he is also trying to put more nicotine into the tobacco used to make nicotine solutions for spraying."

"I don't exactly understand how you can put more nicotine and less nicotine into the same plant," said Little Bob, puzzled.

His uncle laughed. "It's this way, Little Bob. Two different strains of tobacco are being developed, one to contain as much nicotine as possible, the other to have as little as possible. You see, the normal amount of nicotine in tobacco may be about three per cent. In smoking tobacco they have now reduced that to perhaps one or one and a half per cent. But in the tobacco for making nicotine solutions the nicotine has been increased to a full ten per cent. Nobody knows how much more nicotine

can be bred into the plant, but the more they get into it, the cheaper nicotine spraying solutions should eventually become."

"Do they cost much now?" asked Little Bob.

"They are frightfully expensive. A pint of the stuff costs more than two dollars, I think, although I am not quite sure about the price as I am not a fruit grower. But I know the price is terribly high. However, it is so strong that a spoonful or two in a gallon of water will kill all the plant lice that the spray touches. So a pint of the stuff goes a long way. Still, when you have hundreds of trees to spray, and you have to apply thousands of gallons of spray mixture, the cost to an orchardist for nicotine alone is an amazing sum. It's no wonder that good fruit is so high in price."

"How can they do all this with the tobacco?" demanded Little Bob.

"Well, they keep analysing the contents of tobacco plants, and when they find a variety that contains more nicotine than the average plant, they plant seed from that variety, and keep on taking seed from the varieties that have the most nicotine in them. In that way they get plants that have more and more nicotine. But to get smoking tobacco,

they work the other way, seeking out plants that have little nicotine. By continued planting of these strains and cross breeding, they steadily reduce the nicotine content. It's pretty much the same thing we do with our cows—we breed only from the best milkers. You remember what you learned at Mr. Carlin's about Jersey cows and Holsteins—how one had been bred as a cream producer and the other as a producer of lots of milk that hasn't much cream in it.

“I suppose people have always practiced such natural selection, although formerly they did it without a definite plan, as we now manage it. Probably the Arabs, centuries ago, bred colts from their fastest and sturdiest horses, believing that the colts might be faster and sturdier than their parents. It was a matter of life or death to an Arab to have fast and sturdy horses, you know, for often the only way he could save his life was to get away from some pursuing enemy.”

“Well, gee whiz!” said Little Bob. “What will they do next?”

His uncle laughed. “Nobody knows, Little Bob, for we are just started on this business. Until Luther Burbank showed us how to alter plants, and

made us understand the fact that there are definite laws of growth which man can take advantage of, and so direct or alter plant growth, we never thought much about the possibility of rebuilding nature. We just accepted it as it was. Now men of science and progressive plant and live stock growers are taking advantage of these laws and everywhere producing better sorts of the things they grow—whether they are cows or sheep or grapes or tobacco, or anything else.”

“Can we see some of these plants they are experimenting with, Uncle Bob?”

“I’m sorry, Little Bob. It’s the wrong season of the year. Tobacco is a rather tender plant, you know, and is hurt by cold and frost. So it will be some weeks yet before the little plants are set out in the fields. There might be some very early plants in the hotbeds, but they would still be so tiny it wouldn’t help you much to look at them. But I can tell you how they handle tobacco.”

“Please do,” said Little Bob.

“When the plants are big enough and the weather is warm enough, they will set out the plants in these big level fields, which will be cultivated as fine as a garden. The plants will be set out perhaps

three feet apart, or a trifle more, and cultivated so carefully that there will be never a weed in an entire field. The leaves are big and broad, and there are many of them on a plant. If the plants are grown to produce wrappers—leaves used as outside wrappers for cigars—then every effort must be made to keep insects away and to protect the plants from hail or anything else that will make holes in the leaves.”

“How can they do that, Uncle Bob?”

“Well, in some places, where they raise wrapper tobacco, they enclose the entire field with a double cover of cheese cloth. That keeps bugs away and even saves the plants from hail, if the hailstones are not large. It’s an odd sight, Little Bob, to see a ten-acre field tented over with cheese cloth and the weeders inside the big tent working on their hands and knees between the plants. But I doubt if much of that is done in Pennsylvania. Here I think we raise mostly filler tobacco—leaves for the insides of cigars or for use in cigarettes or chewing tobacco. So a damaged leaf doesn’t make so much difference.”

“You would be interested in the way they cure the leaves, too. Do you notice that building yonder,

Little Bob? Have you ever seen one just like it before?"

The lad looked keenly at what he had thought was an ordinary barn, although it was long and narrow, which was a peculiar shape for a barn, he thought. Now he noticed that the sides of the structure, instead of being built solidly of great boards were made with hundreds of little doors that could be propped outward, like awnings.

"That's funny," he said. "Why do they make barns that way?"

"That is a tobacco shed. When the tobacco is ripe, the harvesters will pull each plant up by the roots, and then thrust a lath through the stem of as many plants as the lath will hold. Thus, all the plants in the field will be strung on laths, and the laths will be hung crosswise in the tobacco sheds, so that the tobacco plants can hang straight down. When they are finished harvesting, the shed will be packed full of tobacco plants, hanging very close to one another—thousands and thousands of them. Then these little doors or ventilators will be opened and propped out, so the air can draw through the shed and dry the tobacco. It will gradually turn from green to yellow and from yellow to its rich

brown color. When it is well dried, the leaves will be stripped from the stalks and baled, ready for sale or shipment."

"I wish I could see some tobacco growing."

"I think you can, some day. For later in the year I shall have to go down to Lancaster County, which is the very center of the Pennsylvania tobacco industry, and if you care to go with me, you could see all the tobacco you ever will want to see."

"Oh! goody!" cried Little Bob. "Do you mean another trip like this?"

"Maybe," smiled Uncle Bob. "But let's see what we can see here. For although we can't see the tobacco growing, we can take a look at Judge Dunn's dust plant. He's a friend of mine and will be glad to have us inspect it."

"A dust plant!" cried Little Bob. "What do you mean?"

Uncle Bob smiled. "I was talking about spraying just now. To use tobacco in spraying, fruit growers mix nicotine solution with water and spray it on their trees with a power sprayer. You can also use tobacco dust, and blow it on trees when they are wet with dew, so the dust will stick fast. That kills insects about as effectively as the spray does.

But tobacco dust is mostly used, I think, for dusting plants in the garden and about the home. Anyway, Judge Dunn has a factory here where they beat the tobacco leaves into a dust as fine as any dust you ever saw. He calls it Dunstable Dust, and some day, if you see it for sale somewhere, you will know it was made right here."

Across a field they made their way to a stone building from which came a peculiar sustained racket, while a grayish dust seemed to envelope the place. Here they saw great machines grinding or beating dry tobacco leaves into a dust so fine Little Bob could hardly see it. But he could smell it and taste it and feel it. His nose began to sting and his eyes to burn and his throat to hurt, and in no time he gasped, "Let's get out of here."

Uncle Bob was quite as ready to go as Little Bob. Before they could get out, their eyes were red and inflamed, and full of tears, and they were both coughing and sneezing.

"Well, gee whiz!" said Little Bob, as soon as he could speak. "No wonder the stuff kills bugs. It would have killed me if I had been in there much longer. Gee whiz!"

Then a new thought came to him. "Is that

tobacco they are grinding some with lots of nicotine in it or some without much?"

"It's the tobacco for bugs, Little Bob—the stuff that has so much nicotine."

"Kerchoo! kerchoo!" was Little Bob's answer, and when he was done sneezing he said: "Gee! I'm glad I'm not a bug."

"Correct," smiled his uncle. "But I think you'll be glad you had this experience, anyway."

"I am glad already, Uncle Bob. I guess it's like our adventure with the bull. I wouldn't want to go through it again for anything, but I'm glad I had the experience."

"You'll feel that way lots of times, Little Bob; and if you escape injury or harm, such experiences are worth while. They teach you more about life than you can ever learn in any other way. You know now what is meant by the saying that experience is the best teacher. But don't get all your education that way. Make use of other persons' experience as far as you can."

Chapter XII

Little Bob Makes an Important Decision

For some time after they said good-bye to the Great Island and drove off toward home, Little Bob was silent. His uncle's words had set him to thinking. He had always thought of education as something to be gotten in schools and from books. Yet he had really learned more during the few days of this wonderful trip than he would have learned in many weeks at school. He realized that keenly. He had learned about history, he knew what the country looked like, he had gained an amazing insight into the various farm industries they had inspected, and with it all he had had a wonderfully good time. So impressed was he by all this that he spoke to his uncle about it.

"Of course you have learned a lot, Little Bob," said Mr. Baxter; "and you have learned more easily and more effectively than you could possibly have

out of books. That is because you saw it face to face and could ask questions about it and see for yourself some of the difficulties and problems and pleasures that are to be found in every worthwhile task. That is real education—probably the very best sort of education. But it is impossible for all our children to travel around as you and I have been doing, and have the privilege of seeing things intimately, as we have had. So we do the next best thing—we tell them about these things. We tell them through books and by word of mouth, but it isn't nearly so effective as to see the things at first hand, is it?"

"I should say not," declared Little Bob, emphatically.

"And yet it is better than knowing nothing about things, isn't it?"

"Of course. Why, if it wasn't for books, we wouldn't know much about anything."

"To be sure. I think you have learned a whole lot on this trip, Little Bob, and what you are telling me now is one of the best of all the things that you have learned; and that is that real education is gained in many ways. If you can't go see a thing with your own eyes, the next best thing is to learn

it from a book. But remember that when you study books you are seeing things through some one else's eyes; and some one else may not have seen them correctly. So don't put too much faith in books alone. Try to check what you read in books with what you see in life. Remember that education is really training for your life work, and not merely going to school. So you can get real education anywhere and from anybody and at any time."

"I believe it," said Little Bob.

"There's another thing travel does for you, lad, and that is why I wanted you to make this trip with me. It shows you something about life. How is any boy to know whether or not he would like to be a sheep raiser or a lawyer or a cattleman unless he has learned what is involved in the sort of work he chooses? Take dairying, for instance—you would never have thought about the possibility of being gored by a bull unless you had had that close shave yourself, would you? Yet that is part of the job. Every dairyman has to keep a bull on his premises, and no matter how careful he is, there is always the possibility that a savage bull may break his chain, just as Mr. Carlin's bull did, and perhaps cost the dairyman his life. I tell you, our host had a narrow

squeak. If it hadn't been for that dog of his, I think the bull would have had him."

Little Bob shivered at the thought. "I don't believe I want to be a dairyman," he said.

His uncle smiled. "What would you like to be?" he asked. "Have you ever thought about it?"

"Not much," said Little Bob. "I thought once I'd like to be a policeman, and once I thought I'd like to be a locomotive engineer. But I've been thinking a lot about it since I went to the Farm Show, and this trip has made me think still more about it. Farming seems a lot nicer than I ever thought it was. All the folks we visited had such lovely homes, and the work they were doing seemed so interesting, and they live in such nice country, where you can have such good picnics. Why, I think farming must be fine. I believe I'd like to be a sheep raiser. I love sheep, Uncle Bob."

"Well, Mr. Carroll said that those who love sheep usually make a success of the business and that those who do not usually fail. I guess that is true of any business. So try to find the sort of work that most interests you, and then try to find out all you can about it. Every business has its savage bulls as well as its gentle cows, you know. When

you have finally made up your mind, learn everything you possibly can about that business. Read about it, study about it, talk to men who are in the business, save all the newspaper clippings you run across that deal with it, and see all of it you can. Then, if you work hard, with both your head and your hands, you will be as successful as”

“As you, Uncle Bob.”

Mr. Baxter laughed. “Since when did you learn to be a flatterer?” he said. But Little Bob saw that he was pleased, for a quiet smile seemed to lurk in the corner of his uncle’s eye as they rolled down the river trail.

Suddenly Uncle Bob sat up with a start. “I was so busy talking to you, lad,” he said, “that I forgot to tell you a thing I surely never dreamed I would forget. That beautiful highway we followed from Renovo down to Lock Haven was a part of a great new road the State has built, and it is called ‘The Bucktail Trail.’ Have you any idea why it should be so called?”

Little Bob was at once interested in the picturesque name. “No,” he said. “Why do they call it that? Was this country once full of bucks?”

“Yes, and still is, for Pennsylvania is the great-

est hunting State in the Union, with tens of thousands of deer slain every year by hunters. But that isn't the reason. During the Civil War this was a great lumber country, up here. The vast reaches of young woods we came through were then virgin timber, and Pennsylvania was supplying the whole world with lumber. So you may know there were vast numbers of brawny, rugged, fearless lumbermen in these woods. A great company of them volunteered as soldiers. So they were organized as a separate regiment, and to mark their regiment from any other, each man in the regiment wore a buck tail in his cap. And that isn't all. When the problem of getting down to Harrisburg arose—for it wasn't so easy to travel in those days—these fearless lumbermen made log rafts, no end of them, and floated all the way down this Susquehanna River to Harrisburg and offered their services to Governor Curtin. You may be sure they had a very distinguished record as soldiers."

"Gee!" said Little Bob. "Wasn't that great? And so they named the highway after the regiment? That was great, too. I'm 'glad you told me, Uncle Bob."

"I'll tell you what to do. Look them up in your

history. That's the way to tie up what you see yourself with what others have written. Your teacher will tell you where to find out about them."

"I'll do it," said Little Bob, his eyes shining. "Just think of floating all the way down this river on a log raft. That's great!"

Presently they came to another town. The blue road sign said it was "Jersey Shore."

"What a funny name," said Little Bob. "It's a long way from New Jersey."

"I don't believe it's half as funny as you think, Little Bob, and probably the fact that it is so far from Jersey is why it got that name."

Little Bob looked puzzled. "I don't understand," he said.

"Well, the folks who first settled here were from New Jersey. As you said, it is a long way from that State. Probably they were homesick when they got way up in this wilderness, don't you think? And what's more natural than to put the word Jersey into the name of their new home? Did you ever hear of New Amsterdam, which became New York? First the Dutch settled it and called it after their own loved Amsterdam. Then the English took it, and what did they do? Named it

after one of their cities. When you stop to think of it, the country is full of towns named in just the same way—New Boston, New Albany, or new something or other. Why, Little Bob, there's a whole story in those names—the story of a homesick group of people who had moved to a new land to better their fortunes, but whose hearts were still in the land of their birth."

"I never thought of that," said Little Bob. "Why, that makes names mean a whole lot, doesn't it?"

"Yes, there's a lot of history in town names. Those names often tell where the original settlers came from, and they also tell how they felt about it."

By this time they had passed through Jersey Shore. Uncle Bob had driven across the stream and they were climbing up a slope, toward the long mountain range along which the river ran. Up they went, along the slope, and on and on, until suddenly they came to a roadside marker, a bronze tablet set in a great boulder. Uncle Bob drew his car up close beside the marker.

"This," he said, "is a marker in memory of Colonel Antes, a hero of the Revolution, and a real one at that. You will note that this tablet marks the

site of Antes' Fort. This, then, is where he lived and had a fortified dwelling during those troubled days of the Revolution. He needed it, too, for the Indians and the Tories swept down this valley in a terrible campaign of murder and slaughter, and there were always Indians lurking about.

"When you get home, Little Bob, I want you to go to the library and get a book called 'On the Frontier with Col. Antes,' for here you have another opportunity to tie up what you see with what you read.

"Notice well what this country looks like. Notice its fertile valleys and its rugged mountains and the prosperous homes you see. Then picture to yourself all this vast region covered with forests so dense the sun could not shine through them. Think of the Indians that crept through those dark shades, to fall suddenly upon the unsuspecting settlers and kill and scalp them, burning houses and barns, and so utterly destroying all that they could. You see, Little Bob, those pioneers lived in the shadow of death all the time, and they never forgot it. So you see why they needed fortified houses and brave leaders, like Colonel Antes—and perhaps you will understand better why they named their towns

in memory of those they had left. Most of them realized they would never see their old homes again or any of their old friends. I tell you, they were a brave lot, those old pioneers who came out to subdue this wilderness.

“Don’t forget, Little Bob, that we owe all we have to those first settlers who opened the way for us. Our fine homes, our great barns, our well-tilled fields, our lovely towns, our smooth roads—none of these things would be possible if those old pioneers had not gone ahead and cleared the forest, removed the stumps, fought off the Indians, killed the savage beasts in the woods, and little by little changed a pathless wilderness into this smiling land of peace and plenty.”

For a long time they drove on in silence, each busy with his own thoughts. Their homes lay not many miles ahead of them. Their lovely ride—the most wonderful Little Bob had ever had—was almost at an end. No wonder the lad was silent. But he was thinking hard. He was hoping that although this trip was ended, it might not be the last such trip he would make with his Uncle Bob. The latter had hinted that it would not be. Little Bob wanted to make sure, and presently he broke the silence.

"Uncle Bob," he said, "I've been thinking over all you have told me. I want to ask you some questions. When you told the rest of the Master Farmers that you would visit them, did you really mean it?"

"Of course, Little Bob."

"When are you going to make the other visits?"

"I don't know, exactly. When it is convenient, I suppose. Why?"

"Well," said Little Bob, sweetly, "you told mother that the President of the Master Farmers of 1935 simply couldn't make this present trip without his secretary, didn't you?"

"I guess I did."

"Well, then, I don't see how you can make the other visits without him, either. Do you?" And he smiled up pleadingly at his big uncle.

"Bless my heart!" cried Uncle Bob. "Of course I can't. That would never do. Think of the President having to travel without his Secretary. I guess not." Uncle Bob smiled so reassuringly that Little Bob's heart fairly sang for joy.

"When do you think we'll go?" he asked.

"Bless my heart! Bless my heart!" chuckled Uncle Bob. "Ahem! When do we go? When do we go? Why, I guess it will have to be when you

can make it."

"That," replied Little Bob quickly, "will be just as soon as school closes in June. Will you tell my mother and father so?"

"Bless my heart!" chuckled Uncle Bob. "But what is a secretary for if not to arrange one's work, and make arrangements for a fellow?"

"Then we are going?"

"Ahem!" said Uncle Bob. "This is pretty sudden, isn't it?"

"What is a secretary for?" quoted Little Bob.

"Are you sure everything will be all right?"

"Absolutely. If you tell mother and father, there isn't another thing that needs to be arranged."

Uncle Bob laughed heartily. "You're a persistent little sinner," he chuckled. "But if you have made all the arrangements, I don't see that I can do anything but live up to them."

"Honor bright?"

"Yes, honor bright. We'll go, Little Bob, as soon as you are through with your school. Then you can learn more about the agriculture of Pennsylvania. When you have seen it all, you'll be better able to know whether or not you still wish to be a sheep man."

“Oh! I settled that long ago,” said Little Bob. “I settled that at the Farm Show. But I never told anybody before. I’m going to raise Merinos, too, like Mr. Carroll.”

